

THE COSMOPOLITAN.

From every man according to his ability: to everyone according to his needs.

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By G. Rochegrosse.

"Omega," page 462.



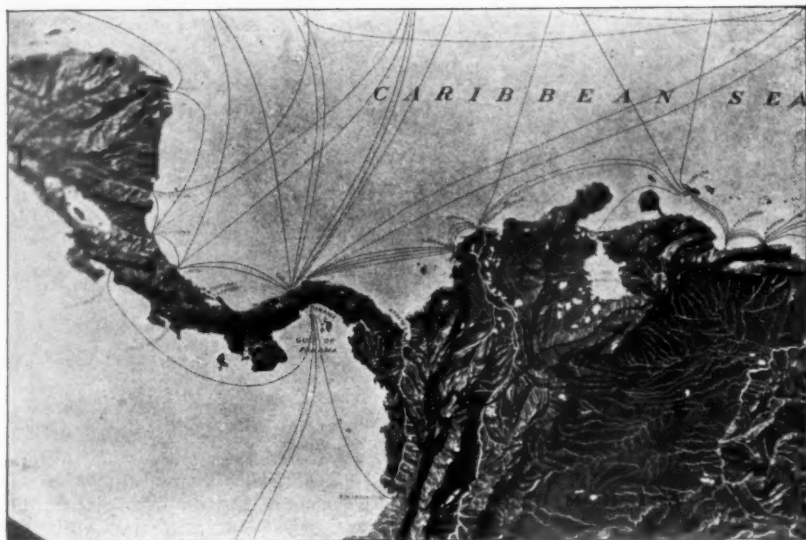
By O. Guillonnet.

"Omega," page 100.



By O. Guillonnet.

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THE INTERCONTINENTAL RAILWAY.

BY W. D. KELLEY.

FOR over a quarter of a century the idea of an all-rail communication between North and South America has at times been brought more or less prominently before the public. In the act of congress approved July 7, 1884, we find for the first time serious inquiry made as to the feasibility of such a line, by the appointment of a commission "to ascertain and report on the best modes of securing more intimate international and commercial relations between the United States and the several countries of Central and South America."

This commission after consulting the various countries interested, made its reports in 1885 and 1886, and as an outgrowth of their investigations we have the meeting of the International American conference at Washington, D. C., in 1889, which recommended a survey of a route for an intercontinental line of railroad to connect the systems of North and South America, and to be conducted by an international commission, the expenses to be shared by the several nations accepting in proportion to their respective populations

at the rate of one thousand dollars per each million of inhabitants.

The recommendations of the International American conference were accepted by Guatemala, Salvador, Costa Rica, Colombia, Ecuador, Peru, Chili, Bolivia, Brazil, Venezuela and the United States; Mexico, the Argentine Republic, Paraguay and Uruguay agreeing to construct the road through their countries, and not sharing in the expense of the surveys. Nearly all of the above-mentioned republics were represented on the Intercontinental Railway commission which held frequent meetings at its headquarters, located in Washington, in the latter part of 1890 and the early part of 1891, and decided to survey or explore what appeared to be, from the best data obtainable, the most practicable route for such a railway.

If we look at a map showing the railway systems of the three Americas we see the vast network of railroads in the United States, constituting one-half the railway mileage of the entire world, extending southward and crossing the Mexican frontier at four points. They converge at



A DAY IN CAMP. SOUTHERN ECUADOR.

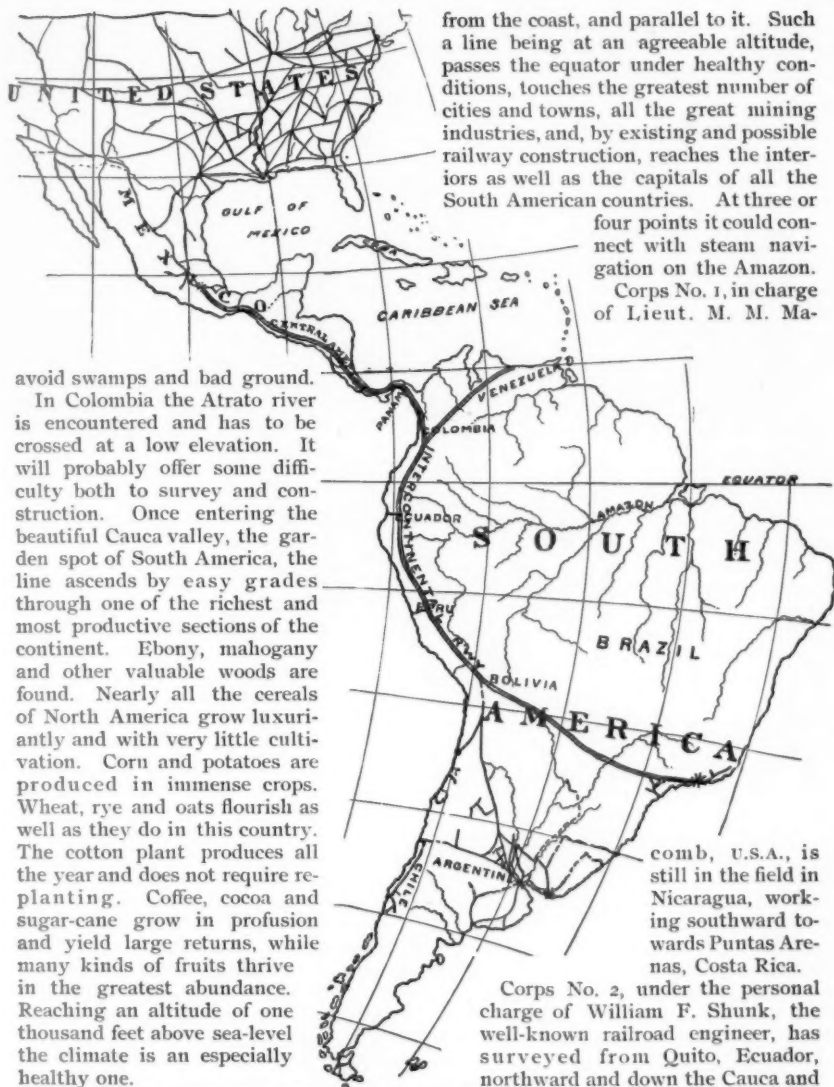
the City of Mexico and continue southward in one line, a distance of two hundred miles further, thus forming continuous rail communication from New York city, for a distance of about 3500 miles. In South America we see the combined systems of Brazil, Argentine Republic, Uruguay and Chili, aggregating 15,000 miles of line, converging northward into Bolivia, reaching a point near Lake Titicaca on the Peruvian frontier. Railway construction has been so rapid in South America that no maps yet show the Chili Antofagasto line built to Oruro, or the railway connection between the Argentine and Chilean systems practically completed. From Buenos Ayres to the northward we have 1500 miles of continuous line. Of the 9000 miles distance between New York city and Buenos Ayres we therefore have 5000 miles not only operating, but forming the backbone of a great system of railroads at either extremity of the proposed intercontinental line.

Between the great system of the North and that of the South, in the intervening 4000 miles, there is already operating, at various points along the line of the proposed intercontinental railway, about 500 miles of railway in the small countries composing Central America, and 1300 miles in Colombia, Ecuador and Peru. Of this 1800 miles of small disconnected lines, but little would be of use in actually filling in the gap between the two large systems, as they are in most cases constructed in from the coast at right angles

to the general direction. They would, however, serve as most important factors and aid both as commercial feeders and as a means of distributing along the interior the machinery, materials, labor and supplies necessary to building a railroad. Again considering the above intervening 4000 miles, much had been done already by private enterprise towards surveys.

In April, 1891, three engineering corps were sent into the field. Corps No. 1, composed of officers detailed from the United States army, to Guatemala, commencing the survey at Ayutla, near the Mexican frontier. The second and third corps went in company via Panama down the west coast of South America to the port of Guayaquil, Ecuador. Thence to the city of Quito, capital of Ecuador, in the interior, a distance of 270 miles, 70 by rail, 200 by mules. After a month's sojourn in experimental camp at Quito, the surveys were actually commenced. Corps No. 2 working northward towards Panama and corps No. 3 southward along the cordillera of the Andes.

In Central America many routes are feasible and almost any general elevation of from 250 to 2500 feet above sea-level can be followed as may be desired, thus taking in the rich coffee belts, agricultural districts and centers of population at will. In general, however, the Pacific slope is considered the best to follow, passing the isthmus on the Panama or Pacific side and continuing southward by skirting high enough on the foothills of the Darien country to



avoid swamps and bad ground.

In Colombia the Atrato river is encountered and has to be crossed at a low elevation. It will probably offer some difficulty both to survey and construction. Once entering the beautiful Cauca valley, the garden spot of South America, the line ascends by easy grades through one of the richest and most productive sections of the continent. Ebony, mahogany and other valuable woods are found. Nearly all the cereals of North America grow luxuriantly and with very little cultivation. Corn and potatoes are produced in immense crops. Wheat, rye and oats flourish as well as they do in this country. The cotton plant produces all the year and does not require replanting. Coffee, cocoa and sugar-cane grow in profusion and yield large returns, while many kinds of fruits thrive in the greatest abundance. Reaching an altitude of one thousand feet above sea-level the climate is an especially healthy one.

Approaching the knots of the Andes, in southern Colombia, the first real difficulties to railway construction begin. Entering Ecuador at Ibarra, the location surveyed, and which was considered best for economic construction, is that on the high plateau of the Andes, between the two great ranges, at a mean elevation of 9000 feet above sea-level, 200 to 300 miles back

from the coast, and parallel to it. Such a line being at an agreeable altitude, passes the equator under healthy conditions, touches the greatest number of cities and towns, all the great mining industries, and, by existing and possible railway construction, reaches the interiors as well as the capitals of all the South American countries. At three or four points it could connect with steam navigation on the Amazon.

Corps No. 1, in charge of Lieut. M. M. Ma-

comb, U.S.A., is still in the field in Nicaragua, working southward towards Puntas Arenas, Costa Rica.

Corps No. 2, under the personal charge of William F. Shunk, the well-known railroad engineer, has surveyed from Quito, Ecuador, northward and down the Cauca and Magdalena rivers. Encountering heavy rains, the examination of the Darien lowlands was postponed until the dry season, and the line was put through to the coast on the Caribbean sea, at Cartagena. Thence the party went by steamer to Puerto Limon, in Costa Rica, and, proceeding to the Pacific side, surveyed a line southward, through Panama, February 16, 1893.

Corps No. 3 surveyed the line from Quito, fourteen miles south of the equator, to the southward, a distance of 1436 miles of continuous transit line. Side lines had to be run to develop contiguous country and passes, making a total of 1700 miles of survey. This corps returned to the United States September 1, 1892, and is the only corps back. Their office work, consisting of forty-eight maps and profiles and estimates of the line, together with an amount of valuable information gathered, is now being worked up in the central office in Washington, and will, when measured on location, following the numerous curves necessary to cross the deep intervening valleys, give 1944 miles of actual railway to be built.

Mr. J. Imbrie Miller, also well known in railway circles, went down in original charge of this corps. He was taken sick at the outset of the expedition, and, never becoming acclimated to the high altitudes, was forced to return to the United States. He succeeded by the writer.

Owing to the lack of details and unfinished summarizing of the results of the other corps, it is not possible to state what their mileage is. But it may be "guessed" that there will be in the neighborhood of a total of 4500 miles of railway to be built to yet connect New York city with Buenos Ayres. It is not expected that such a stupendous undertaking can be accomplished without difficulties or great expense, but the results, so far, show the scheme to be perfectly feasible, requiring nothing more extraordinary to be done by engineering skill than has been overcome on railroads now in operation. There will be plenty of tunnels—tunnels piercing the snow-capped cordillera, tunnels through spurs of the main ranges, and various systems of loop-tunnels to climb the great ascents. There will be numerous bridges of every

description, reaching the maximum that skill can design, in high viaduct construction on sharp curves. There will be heavy cuttings, and deep fillings for embankments. The maximum grade of four feet rise in one hundred will have to be used to a large extent, and curves of as short a radius as 359 feet will be required.

To deliver machinery and supplies to the interior will be, by itself, both difficult and expensive.

As regards operating the road, when completed, numerous difficulties will also be encountered. In places there will be lack of stone or wood for construction; over a large portion of the line, metal railway ties and telegraph poles will have to be used. Coal exists in sufficient quantities only in few places, necessitating the general use of, probably, petroleum as fuel, which is now in general use on many South American railroads. Labor exists along the line in varied quantity and inferior quality. The average South American Indian or half-breed



INDIANS OF QUITO.

don't care to do much work and has many attractive religious "feast days," which take preference to all else to be attended to. The total cost of constructing a railroad to join all systems on the American continent would approximate two hundred millions of dollars. Instead of raising this sum by general contributions to stock or by subscriptions of the governments, it is assumed that the work would better be done by land and mineral grants given by each country directly interested, to private parties or syndicates and contractors. Each country would enter all materials for construction free of duty; military protection and absolute neutrality would be guaranteed the contractors in case of war.

Notwithstanding the difficulties cited, and which all must know exist in such a mountainous country, it is believed that



COTOPAXI AS SEEN FROM THE SURVEY LINE.

none of them are insurmountable, and that it is feasible to construct the road and operate it to advantage.

It was on the 21st of April, 1891, after a continuous and undelayed journey of eleven days from the time of leaving New York city, that the combined second and third corps arrived at Guayaquil, Ecuador, from which place the much-talked of march to the interior was to begin. We found Guayaquil to be a very thriving business town of forty thousand inhabitants, furnishing to the United States the greatest value in exports of any port on the west coast of South America. The busy scenes along the quays remind one of the docks of Liverpool on a small scale, the chief exports being coffee, sugar, hides, cocoa, rubber, rice and quinine. After six days' sojourn, and having received many hospitalities at the hands of the governor of the province, we were placed under charge of guides, furnished by the government of Ecuador, and began our journey over the main range and into the plateau to the city of Quito. The entire expense of transporting both corps was defrayed by the government of Ecuador.

At this point our new experiences began—the rainy season, with its swollen rivers and torrents, and trails belly-deep in mud, confronted us. We doubted the efficiency of the mule, which is the typical feature of South American life, and upon whose habits and usefulness volumes could be written and not one-half be told. He is

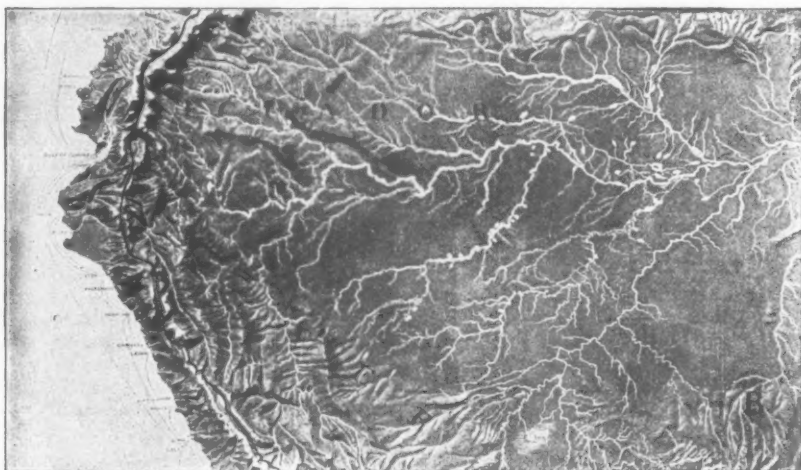
the motive power of the country—the baggage, freight, passenger, express and fast limited train of the land. He is the civil engineer, knows an unsafe bridge and the depth of every mud-hole and creek by the smelling of it. He is the only standard authority on distance from tambo to tambo. In following a mountain trail, winding and climbing around bold precipices, with thousands of feet below and above him, he always walks on the outermost edge of the path, mattering not whether the way is narrow or wide, and it would seem, at first, that in this he erred; but a little experience and acquaintance shows his theory to be correct, for he avoids better the falling stones from above and can escape the meeting of other mules in narrow defiles, making it impossible to pass, and not allow his cargo, be it either a pack or rider, to hit against the rocks and cause him to lose his balance. At first, the distrust in one's mule leads him to get off and walk in all bad and dangerous places, but it does not take long to learn that the safest place is on his back.

The fatigue of exertion in high altitudes, in rarefied atmosphere, begins to show itself at eight or nine thousand feet above sea-level, and at fourteen thousand feet it takes the form of a disease, known by the natives as "zaroche," the symptoms being dizziness, weakness, bleeding at the nostrils and ears, and perhaps dysentery and bowel troubles, of which strangers frequently die when making

the change too suddenly from the sea-level to the plateau. It might be said that all the members of the two surveying parties were, for the first month, more or less affected with this trouble, and some of them never became acclimated, and had to be sent down to the coast on litters rigged up for the purpose, carried night and day over the mountains by Indians. Of the ten or eleven English-speaking persons, including the corps surgeon, detailed from the United States navy, who composed the party at various times, only two besides the writer withstood the diversified phases and effects of climate, customs, food and exposure, and com-

spring; crops do not have to await the succession of the seasons to be planted and gathered; flowers and leaves fall while fresh ones bud into life. The hospitalities of Ecuador reached their climax amidst the banquets and receptions extended by the president and his committees, and the attentions of the citizens.

Our eighty mule loads of camp outfit had arrived and the first camp was pitched a few miles south of the equator. Like one enemy surrounding another, the tent-like peaks of eleven volcanoes, inactive and covered with eternal snow, peered down upon us from high above the clouds. This was called our "practice camp."



pleted the expedition. Only experience can tell what it is to be sick with summer complaints or fevers, and be obliged to live on wild bananas and fruits, and drink waters from different sources and streams. Usually, the mountain streams from the perpetual snows furnish pure water, but they are frequently laden with all sorts of mineral products.

A lapse of ten days after leaving Guayaquil, surviving our first mule ride and many hospitalities, found us in the hands of the reception committee at Ecuador's capital.

Quito is a well-built city of eighty thousand inhabitants, situated fourteen miles south of the equator and 9350 feet above the sea. The climate is that of perpetual

Here the machinery of our future movements was put together and the first stake on our survey for an intercontinental railway was set on June 2, 1891.

A back-sight transit line was run the entire distance with the stadia system for taking distances and levels. A thirty-foot stadia rod, in three sections, with a banner of white cloth one yard square on top as a signal, was used. The chief of the party and three Indian guides always went ahead with the stadia rod. Owing to the extreme clearness of the atmosphere at the high elevations, sights of half a mile could be read with as much precision as those of a thousand feet in ordinary survey work. Following the stadia rod came the transitman, the to-

pographers and their Indian helpers. The transitman took and recorded the survey notes, the topographer plotting them on the field maps and filling in the topography from stake to stake, two to twenty miles in width according to circumstances, using systems of intersections, slopes and the usual methods in plane table work. A pair of selected aneroid barometers were used, as a check only, for differences of elevations. Following the transit and topography parties, came a helper trained as a back rodman. The transitman after taking his reading on the long head stadia rod signalled "all right," the white banner of the stadia rod repeated the signal and the three separate sections, thus usually not within speaking distance from morning to night, moved always simultaneously from stake to stake. The surveyors generally left camp at daybreak, and on an average day's run were two or three miles ahead by noon. By 1 P.M. the previous night's camp had been lifted and the field party overtaken, the Indian guides receiving orders from the chief of the party as the cargoes passed the head rod. Camp for the night was then pitched such a distance ahead that the surveyors would set the last stake of the day in front of the tents at nightfall and then dismount and go in to dinner. A lunch was always carried in the saddle pocket for midday. The length of the day's work was always planned with first considering where food and water for the animals could be best provided. The maximum day's survey was fourteen and four-tenth miles on a level pampa with unobstructed sights and easy topography. In a wooded country, sometimes a whole day would be lost in getting a single sight. Cases of emergency arose when a mountain top would have to be cleared off and a tall straight tree selected, cleaned of its bark and rigged up with a cross-arm at the top and used as a stadia rod. In narrow valleys, or in much broken or wooded country, side lines would have to be run to enable the topographer to get wide maps. The total number of continuous miles run was 1436. Counting the side lines, 1700 miles were surveyed. This occupied the fourteen months from June, 1891, to July, 1892, an average of over 120 miles per month, or

four miles per day. We were obliged to work Sundays and holidays while on the march in order to make the provisions hold out until a fresh supply could be laid in. By living a part of the time on half rations, provisions for three weeks could be carried in cargo. At the expiration of such an interval it would be found necessary to halt at some tambo where man and animal could be fattened and rested and fresh supplies laid in. A misunderstanding, a wrong trail followed by the cargoes, or sometimes a sick mule, would be sufficient cause for leaving the surveying party at night without tents, food or blankets, to sleep in the dews on a cold mountain-side, or, perhaps, on the ground in a howling rainstorm.

The Indian helpers who worked on the line or acted as guides or mule drivers, were usually "forced peon labor" supplied by the government and paid for by the corps at a little higher than their usual wages per day elsewhere, so as not only to pay them for their return journey home, but to encourage a spirit of willingness.

Circular letters from the heads of the governments were issued to the governors or prefects and on down to the lowest "tenientes" along the line of survey ordering them to furnish the party with all necessary facilities, including transportation, food, guides, or even guards of soldiers when requested. The camp was under cavalry escort twice, once in Ecuador when peon labor could "not be forced" to enter the low forests of the interior Amazon district, and once in Peru through a country infested by Indians hostile to the government.

At the very outset of the expedition from Quito, sickness had divided the corps into two camps. The "sick camp" having been left behind in Ambato, a town at the end of the diligence route, seventy-five miles south from Quito, at the



A NATIVE HALF-BREED SPINNING.



BRIDGE ON THE NATIONAL ROAD NEAR QUITO

expiration of two months of hopeless expectation, returned to the starting point on the coast at Guayaquil. Recruits to the engineering force were sent down from Washington and joined the surveyors in the interior of southern Ecuador. Sickness this time combined with misfortunes incident upon a disheartening attempt at crossing the cordillera in heavy rains, caused a second division of the expedition at the end of a union of only a month.

The three of us who had surveyed the line from Quito were again cut off from the main camp and had passed the main cordillera and entered the virgin forests and lower foothills of the Amazon basin. This time the separation was unexpected. Reflecting upon our situation in the woods, cut off from supplies, amid heavy rains, without change of boots or clothing, pestered with fleas and other insects, doing hard work, mostly on foot, as the few mules with us could only pick a meal from the leaves of the scattered edible vines, our Indian helpers sick with fever, all without proper food, the best was made of a bad situation, and at the expiration of two and a half months, pushing ahead little by little, small villages were encountered and dreams of Peruvian civ-

ilization became a reality. The torrents of the upper watersheds had grown in their courses to swollen and rapid flowing rivers, which had to be swam, or crossed by vine bridges, some of the more sluggish ones by rafts constructed of bamboo, others were forded if a broad shoal could be found; each day meant a wet skin for everybody. It was on Thanksgiving day, 1891, in the forests, that the frontier was crossed by fording the Rio Chamayo.

Passing through Ecuador, a distance of 248 miles by survey, to the Peruvian frontier, the first 250 miles may be said to be thickly populated, and towns of as many as fifteen thousand inhabitants are common, fully nine-tenths of the population being full-blooded Indians, the remainder cholo half-breeds and shading imperceptibly into the Spanish type of descent, of which there are very few in the interior.

On the immediate line of the survey of the 413 miles in the valleys of Ecuador, fifty towns are touched with a total population of 246,000. Six of these towns exceed 15,000 inhabitants, and one of the number, Quito, contains nearly 80,000. Nowhere is a whistle heard nor is there a piston moved by steam. The only road

over which a wagon can or is supposed to pass, is the national road, built by the French, and extends from Quito about seventy-five miles to the south. At Cuenca, Loja and Riobamba, the three next towns in the interior of importance, short stretches only of roads exist. A wagon road was once built by the government from the coast up to Quito, over which no wagon ever passed. It is a wonderful piece of work to ride over it on mule-back and get to one's destination alive.

All cargoes to the interior, and in the interior, are transported on mules. Such a trail is called "camino real," or main road, by the people, and has constituted their "Broadway of commerce" for three hundred years. It is left to the imagination of the reader to picture what the people call "trails," if these are the "main roads." In the interior of Peru there has been even less done towards road construction and general progress than in the interior of Ecuador. Interior Peru has no wagon roads whatever. Sixty-six towns of all sizes, to 60,000 inhabitants, were found on the immediate line of the survey containing a total population of 482,000 people. As in Ecuador, nine-tenths of these are Indians, the re-

mainder being cholo half-breeds and a scattering of Spanish blood. There is also a general similarity in the laying out of the towns.

A railroad built on the line followed from Quito to Cuzco, and comprising Ecuador and Peru, would be a vast elevated railroad in a fertile valley nine to fifteen thousand feet above the sea. On either side, high ranges of cordillera with the volcanic peaks are covered with everlasting snow. Here and there at intervals of two or three hundred miles, the symmetrical valley is broken up into a hopeless puzzle of cross ranges, isolated mountains, extending spurs, rivers flowing in all directions, until with one crowning effort, they combine and break their way through an abrupt cutting in the cordillera, passing off to one side and down to an ocean. Perhaps when a knot of the Andes is thus passed, one finds himself in the drainage area of the other ocean. Nine times the survey crossed from Pacific to Atlantic waters.

In the deep valleys is found the tropical climate with its most generous and profuse exhibition of living things, the typical spot to study the law of the survival of the fittest and the history of creation.



ONE OF THE AMUSEMENTS OF THE PEOPLE.

Vegetable and animal life struggling side by side, with imperceptible transitions from one to the other, each preying upon its neighbor and using it as a means for its own advancement. Where there is cultivated land there is found sugar-cane, bananas, oranges, alligator pears, delicious chirimoyas and an endless variety of other fruits. Also, perhaps, cocoa, coffee and tobacco. Otherwise we might find nature doing more than her share in an attempt to raise a plenitude of bana-

sion of changes from perpetual snow at 14,400 feet above sea-level to tropics at 3800 feet above sea-level; a difference in elevation of over two miles, in the ordinary course of one day's march. Tents pitched in snow and ice on one day and in hot sands the next; bitten by severe frost, then by insects; sleeping in one's clothing with extra sweaters and leggings and six blankets, both woolen and rubber, aggregating over a dozen thicknesses; then only enough to protect one from fall-



CAMP PEONS WEARING THE PONCHO

nas, and sugar-cane for making rum or aguardiente, to keep up the existence and drunkenness of a tribe of naked savages, whose only aim in life is to live for the sake of living. Higher up is the sub-tropical climate with the products of Italy, and in the more elevated ravines and hills the temperature and crops of our own country. Thence ascending through the pasture lands of the Alps and a subarctic zone through the vast patches of tall long-branched cactus trees, with their delicious edible fruits, into the arctic, arid and rocky mountains, capped by craggy peaks of everlasting snows, leaving all animal life below but the majestic condor, the only creature living above the snow-line.

Our own expedition actually passed through, at one point, this entire succes-

sion of changes from perpetual snow at 14,400 feet above sea-level to tropics at 3800 feet above sea-level; a difference in elevation of over two miles, in the ordinary course of one day's march.

Thus as we find all shades of conditions in the vegetable and animal kingdoms depending upon the elevation above sea-level, the elevation being of itself the prime factor which establishes the temperature and climate; we find likewise similar differences in the races of people which make up the inhabitants. In the low, hot countries where nature will almost without human help raise a crop of bananas and a few vegetables, the Indians exist on such as they can get with the least labor. In the hot country the needs of the Indian are few, and we find him a naked savage. The women do the work about the hut and care for the limited necessities of life, the men do some crude hunting with blow-guns (made of the

chonta palm hollowed out) and with an arrow a foot long, or with bows and arrows.

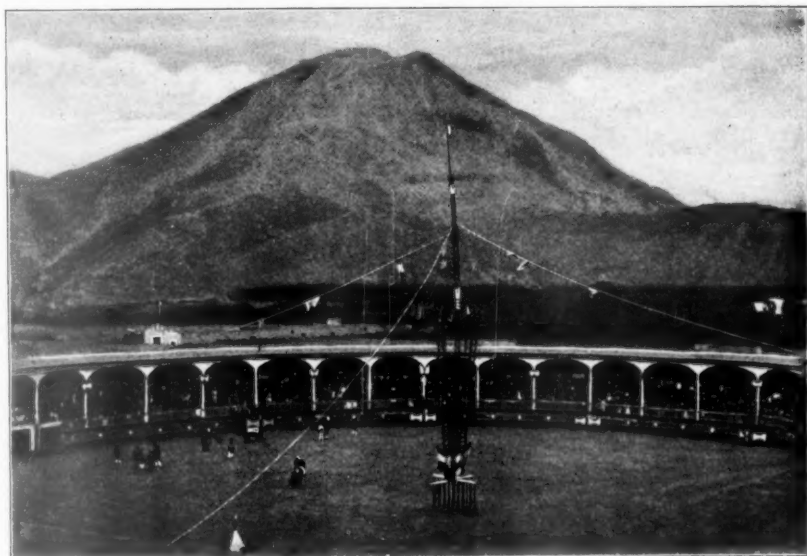
It is said that among some of the savage tribes of the montaña cannibalism exists. Not only are strangers attacked, but they have the custom of eating their own deceased relatives, believing as they say, "that it is better to be inside a friend than to be devoured by the black earth."

As savage and uncivilized as these interior tribes are, they have done something in the way of progress; self-progress, for they have never been conquered; the changes wrought by Spanish invasions, wars with neighboring republics or interior revolutions, never penetrated to the remoteness of their people. They wash considerable gold and collect birds, monkey teeth, hides and snake skins. To dispose of their articles they travel on foot a journey of a month or more to some village or trading-post, usually arriving for a feast day. Their barter does not bring more than the price of several days' liquor in exchange. The feast day being over, and a grand drunk and dance gone by, they return to their homes.

Of the customs of tribes of the low hot lands, the most curious the writer met

with is the art of preserving the human head with all its features, but reduced to the size of one's fist. Various scientists, especially Germans, have tried to learn from them the process. Specimens of these preserved human heads have been obtained and sent to civilized countries for scientific study, but nobody has yet been able to discover this art. There will be a number of them on exhibition at the World's Fair. It is known that the bones and matter of the head are first extracted and the head filled with an unknown material. The long hair is wrapped up in leaves of a mountain herb which protects the hair while the head itself is placed in a pickle, the composition of which is unknown. At the end of this process, whatever it may be, the result is a human head reduced to one-quarter the natural size, with its natural length of hair. This they suspend by a string made of fiber from a girth or belt about the waist, and it is worn by the men of the tribe.

As we approach the mountainous districts and attain an elevation and a colder climate, the Indians have to wear correspondingly more clothing and eat more nutritious food, hence we find, as we might expect, a more industrious race. The children are taught to scale the high



A BULL PLAZA AT LIMA, PERU.

mountain-side pastures and guard the sheep, goats or cattle from sunrise to sunset. The women, in addition to their duties in preparing the food, are always busy with their spinning. A considerable ball of wool on the end of a stick is spun into a thread on the middle of another stick, which is kept in rapid motion by means of the twisting of the finger. A potato stuck on one end of this revolving stick serves as a governor to give it uniform motion as well as equilibrium.

The customs, language and appearances of the people change with every locality. Valleys only a few miles apart contain "bandas" or tribes quite different, and not able to speak the same dialect, all of them dialects of the old Inca tongue, of which there are said to be some twenty thousand. Some tribes may wear their



INDIAN MOUNTAIN HUT.

hair long, others short. Some wear clothing made of wool of their own raising, others clothing of hides of all kinds, and frequently of sheep skins with the wool left on. Some wear a sandal or sole of llama hide, fastened on by strings leading between the toes and tying over the foot. Some wear the broad sombrero, others a straw hat of their own manufacture. All Indians seem to be specially adept at weaving straw. What we call the Panama hats, and which are worth even thirty to forty dollars or more, are made by the Indians of Ecuador and are brought mostly from Guayaquil. The universal apparel is the "poncho," a coarse, square blanket of bright colors with a slit in the center through which passes the head. Not only the Indians, but the Spanish-speaking classes are seldom seen without the "poncho," it is a South American garment, well suited for idle hands, as it is impossible to work with one on.

The ancient race of Incas which populated the high plateaus and cordillera before the discovery of America, seem to have been very progressive. The Incas had nobody to teach them; no mother

country. They were an entirely independent and self-developed people, solving their own problems of self-government.

The expedition of the Third corps may be said to have passed from one of these old Inca capitals, Quito, to the other, Cuzco, and, more or less, generally followed their old trail, cutting it open wherever closed by the overgrowing forests. Along this highway are many landmarks of the Inca. Chief among them ruined walls and towns of considerable size, old baths, hot, tepid and cold, made by walling up the springs where the water comes out of the ground. Numerous are the high "ventanas" or windows of the Incas, cut into the brown, chalky or hardpan perpendiculars. Hardly conceivable is it how they could have been able to scale the apparently smooth faces for as much as five hundred feet in places, but when once these little rooms were reached, it is equally easy to imagine how safe they were from attacking foes. These windows served as forts or strongholds, and not uncommonly commanded important points or passes in the mountains.

It is as we approach Cuzco that one finds the more remarkable works of the Incas, monuments of the high civilization they had attained. Their old temples contain huge monolithic doorways, cornices, staircases and rows of well squared and fitted stones, all built without mortar of any kind. Various writers have even gone so far as to state that "in no part of the world have stones been cut with such mathematical precision and admirable skill as in Peru, and in no part of Peru are there any to surpass those which are scattered over the plain of Tiahuanacu."

While admitting the wonderful stone-cutting, and considering the huge blocks of stone moved and put in place, the writer, as an engineer, is not yet able to admit that they surpass our own feats in architecture and engineering skill of today. Many of the stone blocks of the Inca walls and palaces are fifteen feet high by twelve feet, while the largest seems to be twenty-seven feet high by fourteen feet. These were moved and put in place a distance of ten miles from the quarry. We must, however, give due credit to the

self-developed Inca people of having possessed one of the "lost arts," i. e., the art of tempering copper, of which their stonecutting tools were made. The Incas worked in gold quite extensively. They extracted it both from the quartz and sands in considerable quantities. The interiors of some of the old temples, still existing, but used for other purposes, yet contain the gold decorations; at times hammered as thin as paper and covering an interior vault or wall. Their sun-dials and meridians give evidence that they had some knowledge of astronomy.

Peru is especially rich in minerals, gold and silver predominating. The route fol-

Cajamarca, machinery has been introduced to a large extent. Cerro de Pasco, with its busy streets, large number of foreigners, chimneys pouring forth coal smoke, a small mineral railroad and now and then the screech of a steam whistle, is the only interior town which would even remind one of our own country.

Approaching the end of the survey at Cuzco, in southern Peru, in the last 250 miles were found what will turn out to be the most difficult and expensive of construction. The cordillera takes a turn in an east and west direction and is cut by three deep rivers at right angles to the line. Three times the railroad would



CROSSING OF CAMP CARGOES AT QUEBRADA OÑA, ECUADOR.

lowed by the survey touches the immediate vicinity of all the mines. In the Amazon headwaters of the interior of Ecuador and Peru the rivers carry in their sands considerable gold in workable quantities, in places the ordinary Indian by his crude methods being able to wash out as much as five or ten dollars worth per day. These are, of course, valuable in themselves, but still more valuable to those who are to become the future developers of the soil in discovering and working the vast mines which must somewhere lie buried and hidden at the sources of these gold-laden streams. In the most important mines, the silver mines near

climb on maximum grades and curves and spirals from hot tropics to perpetual snows in this distance, representing elevations between 6000 and 14,400 feet above the sea.

The maximum elevation at which camp was pitched was 16,300 feet, in a deep snow and during a driving hail storm amidst rocks as large as the tents. The lowest elevation reached by the expedition was 2200 feet in the Marañon-Amazon, called "tierra caliente" or hot lands, where the midday sun could not be endured and work had to be suspended frequently until after 3 P.M.

The plant life of the Andes bears but

little resemblance to that of the United States. Of our own familiar forest and road trees, none of the kind exist there. Peach, pear, apple and plum help to make out the great variety of fruit life. They seem to be different from ours but not better. Roses on the wayside are common.

In Ecuador the Pacific watershed receives rain in season and is fertile. Further south, along the coast of Peru, however, the moist Atlantic air-currents seem to deposit their moisture on the eastern side of the cordillera. Upon striking the cold snow mountains, the last bit of moisture is deposited, and as dry winds they pass over to the Pacific side, and we find as a result almost a continuous sand desert over which the peculiar crescent-shaped sandhills travel, life-like, in large family groups. On the Peruvian coast it never rains. The houses are built with flat roofs and an umbrella is next to unknown. Animal and plant life exist only where an occasional river, fed by the snow mountains, reaches the coast.

Therefore, it is behind the Andean chain, in the warm rivers of the Amazon basin, well wooded and watered, that we find the greatest animal life. Snakes, vipers, tarantulas and centipedes crawl in the undergrowth or drop from tree branches. There are great numbers of bats and butterflies. Myriad swarms of insects tattoo one's hide leaving a black spot or ring at each bite. In the warm waters are fish, alligators and tortoise, and there is an endless variety of water birds. Duck and snipe were frequently shot and served in the camp mess. On the grassy hillsides wild horses and deer graze, and may be seen at sunset coming down to drink at the ravines. Richly plumaged parrots swarm on the red berry bushes and make the air hideous with their jabbering. Beautiful varieties of humming birds are busy from flower to flower. Many varieties of monkey, mountain lion, jaguar, bear, fox and other animals of large type hunt their existence about settlements where food can be obtained. The animals in the lofty sierra are the domesticated llamas and alpacas, and the wild vicuñas



OUR GUIDE.

noted for their very fine fur.

Probably no other country offers a larger field of study for the scientist. Of the many large telescopes looking for other worlds, none are south of the equator. Hence a large amount of the heavens is unobserved by us. There is now being established an American observatory at Arequipa, Peru, where some valuable observations

have been made, notably of Mars. It is to be hoped their attempt to secure a more powerful telescope may be successful. No greater field for the study of volcanoes, geology, mineralogy, botany and natural history exists. Scientific research offers to man a very excellent opportunity along the Andean chain.

Gold, silver and many other precious metals lie hidden in the Southern Cordillera, similar to those of the North, which have already added so much to the wealth and development of the United States. Agriculture offers to the settler fertile valleys and continuous crops belonging to every zone. The hospitalities of a people eager for the advancement of their countries are held out to all.

The many banquets tendered the engineer corps along the entire line of survey and the expressions of sympathy manifested, as well as the extreme courtesies and hospitalities of the private citizens tendered us, go to prove the anxiety with which our sister republics of the South await the coming of those closer relations with the people of the North, which may give them like prosperity. They all speak in hopeful terms of the construction of an intercontinental railway to link the northern and southern hemispheres.

A great deal has been both written and said in regard to our business and trade relations with those countries. Everybody seems to admit that they are not what they should be.

Geographically situated and connected as the three Americas are, the disadvantage we are at in trade with one another does not seem to be a natural one. Why, of a total of nine hundred millions of dollars worth of trade in all the Spanish American countries, does the United States get but one-fifth? Great Britain

alone exports to our own neighboring republics more than twice the value in manufactured goods that we do. In 1889 when the delegates came to attend the Pan-American congress held at Washington, they came by way of Europe crossing the ocean twice.

Railroads and steamship lines stimulate trade when people are desirous of trading with one another. If that desire does not exist, then no amount of communication between them or even the locking of them up in the same room can make them trade. As in "swapping jack-knives," it takes two people to make a bargain.

Our engineer corps had purchased field instruments of a leading firm in New York city at a price twenty per cent. greater than we could have bought the same instruments, of the same firm, had we ordered them from South America. An equipment of rifles and side arms, even with a discount allowed us in New York city, would not bring as much after we had carried them to South America. The same thing applies to sewing machines

and calicoes especially, and almost all manufactured articles in general. Naturally a manufacturer who can sell his goods at home for twenty per cent. more than he can elsewhere does not care to cater to other trade, even though he may make a fair profit on outside trades; he does not care to make special grades of his goods or to take special care or expense in the packing and shipping of them, for the mere sake of introducing his wares and entering into competition with others. In return also, neither does the foreign buyer care to buy even at the same prices when he can be better suited elsewhere. Such arguments as these came to the writer's ears frequently while in conversation with South American merchants.

The fault would seem to be with our own manufacturers, who, getting more for their goods at home than elsewhere, don't care for the South American trade. It makes no difference whether the cause is due to cheap labor in other manufacturing countries, or, as some have lately argued, due to a less active diplomatic corps there, or, in short, whether it



QUITO.

be due to the "man in the moon," so long as the desire to trade does not exist, there will be no trade. It seems with all the questions arising as to trade, reciprocity and better communication by rail and water, between the great republics of the American Hemisphere, as though the day were approaching when the channels of trade would return to their natural course and that with it would be built a great intercontinental railway.

When we inquire into the future of the Intercontinental railway, say fifty years after its completion, the imagination is lost in a labyrinth of possibilities.

However we base our estimates of its prospective value to mankind—and to the western hemisphere especially—we arrive at the most fabulous figures.

What the Pacific roads have accom-

plished, in comparatively few years, is too well known. Within one year after the arrival of the locomotive at the City of Mexico our commerce with that country trebled—six years multiplied it sixfold.

The Argentine Republic, due to its railroads, doubled its population in ten years.

With the present unsatisfactory trade relations, our commerce with the Spanish Americas is gaining about forty million dollars each year—mostly in imports. Put the civilization of the North into contact with that vast undeveloped wealth of the South, and it will mark the advent of such an era of prosperity as the world has never known.

The United States has undertaken this task in its conception of the Intercontinental railway. To her guidance and direction let the honor be to complete it.



NATIVES FLOWING.

TIME.

BY CLINTON SCOLLARD.

TIME is as feather-footed as the snow;
So light he treads we never hear him go,
Save when we list the clock's untiring beat
Marking the swift iambs of his feet.



FROZEN MOUNTAINS OF THE SEA.

BY MARY ELIZABETH JENNINGS.

EARLY in the summer our small party sailed from New York for Pilley's island, which lies well up on the northeast coast of Newfoundland. The objects of the trip were rest for tired brains and over-strained nerves, and an ardent desire, on the part of two of the party at least, for a nearer acquaintance with icebergs. From the start everything seemed propitious. Days of sunshine succeeded each other. The nights were clear and brilliantly lighted by a full moon. The sea was moderately smooth, and it was not until we reached Cape Race, around which sweeps the great polar current, with its lap full of ice, that we saw and passed our first berg. Caught by counter currents it was slowly but surely drifting upon jagged rocks, outposts of the desolate precipitous cliffs of Newfoundland, which rise from water fifty fathoms deep. During the afternoon we

passed fifteen more. The wild shore made a grand background for them, but after all, with one or two exceptions, they were disappointingly small. Leaning upon the rail and gazing at a berg some distance away that bore a remarkable resemblance to the Lion of Lucerne, the captain in passing stopped to inquire, "Do you find it equal to your expectations?" I confessed my sense of disappointment. "These are not so bad when you remember that nine parts of an iceberg are under water," he replied, "but wait until the morning—you will not be disappointed then."

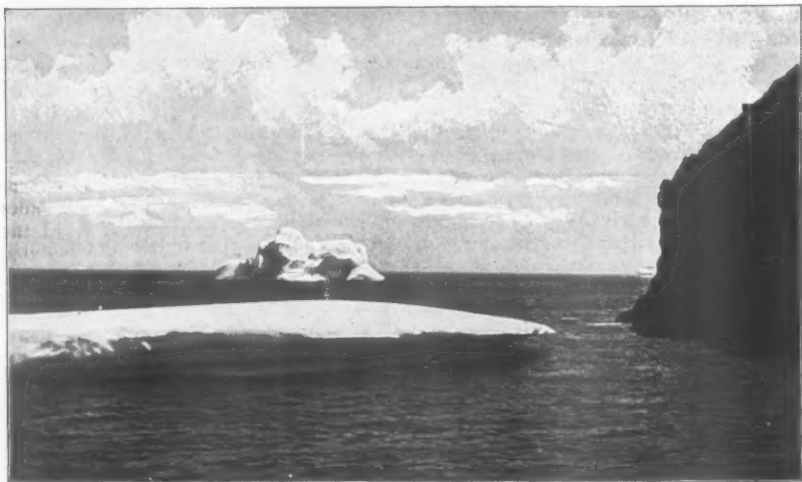
As night came on, we caught occasional glimpses of far-away constantly changing bergs, that under the magic of the moon's bright rays, turned to gleaming silver. The sight was very beautiful, and our enthusiasm grew in proportion, nevertheless, when, we cold and sleepy, stepped on deck

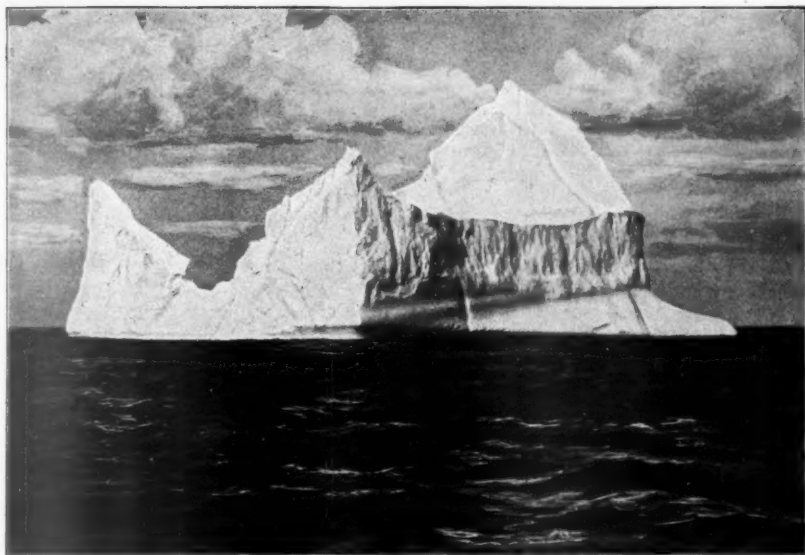
a little after four o'clock the next morning, we were scarcely prepared for the sight which greeted us. The sun had already risen and hung low and dreamily in the clear sky, while all around the clouds and waves were laughing and blushing in rosy glee. Seated majestically upon the water directly in front of this blaze of glory, which wrapped it around like a golden-tinted veil, was a huge iceberg, in form like unto a castle of ye olden time, with tower, battlements and turrets of purest marble. As we advanced, and the sun rose higher in the heavens, he poured over it such a flood of liquid gold we could no longer gaze upon it, but turned away only to find many large bergs near us. Fifty were in sight. An officer remarked that two or three of them were fully three hundred feet in height. They were of every conceivable form and shape. It needed no imagination to see the grand cathedral with its graceful pointed spire, while close beside a huge square block of solid gleaming ice lay the figure of a sinking ship, only the prow and masts with a bit of the smokestack above the water. Farther away stood a little country church, with its graveyard beside and behind it, showing one spot in shadow that looked like an open grave, and as we stood in silence there seemed to come over the water, on the still morning air, the sound of its tolling bell. Close beside us arose a huge

triumphal arch which would quite overshadow the Arc de Triomphe in bulk and grace and color. There were many hill shapes, some of them crowned with ruins of old castles. Among them stood a graceful leaning tower. We passed quite near a strange berg, across whose moderately slanting surface, the lower edge of which was raised but a foot or two above the sea, were two distinct and plainly marked paths, as well as other evidences of animal occupancy in the past.

The clouds, which had been for some time obscuring the sun at intervals, now gathered thick and dark, and when, after lunch, we reached the deck, it was to find the rain falling heavily, the first unpleasant weather we had experienced since leaving New York six days before. After the first feeling of disappointment had passed, we found the new condition of things not so much to be regretted after all, for it gave us another and different view of the giants of the deep. Now as ghosts, dressed in misty white, they glided past us. We listened to the hoarse sobbing of the ocean under their massive sides, and watched them until they faded into the mist and grayness of the sea.

The rain ceased falling and we obtained a fine view of the charming islands as we ran in among them, threading our way around and by them, until we came to anchor close by a beautiful shore. Pil-





ley's island—nine miles long—is scoloped and fringed its entire length by pretty little bays and fragrant shrubs. Its rounded hills are wooded to the top, and many rare fern-like mosses and creeping vines grow luxuriantly in the rich, moist soil.

Late in the afternoon we left the steamer and strolled up the hillside, pausing at length beside a half hidden spring of clear, cold water. Although not more than a quarter of a mile from the steamer, the solitude was absolute. Not a sound from bird or insect disturbed the quiet. Like Adam and Eve of old, with one great exception—there are no reptiles in Newfoundland—we had the world to ourselves.

As the sun went down, we watched with delighted eyes the lovely glow that flooded rock and sea and sky, until great shadows in hiding behind the heavily wooded banks, stretched out long arms and slowly gathered the bright picture in close embrace. So nature fell asleep, and the soft breathing of the sea alone stirred the hush that brooded over us.

Here three days passed pleasantly by, and Wednesday morning found us upon deck at four o'clock, the hour of beginning our homeward journey.

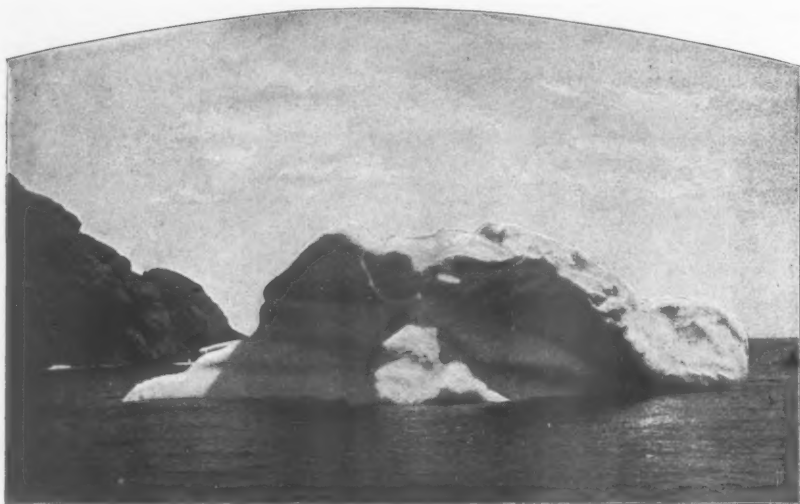
Who can paint upon paper the exquis-

ite sunrise, the quiet, broken at long intervals by the "peep" of some sleepy bird, or the fragrant odor of the pine trees bending low over the mirror-like water, with ever and anon a rustle of laughter among their branches? As we neared the open sea the scene changed a little, for many of the islands now had an iceberg near them or stranded at their feet; and

"The steady sun heaved up as the day drew on,
And there grew a long swell of the sea;
And, first in upper air, then under, everywhere,
From the topmost, towering sail,
Down, down to the quarter rail,
The wind began to breathe more free."

The sun shining upon these ice-masses causes them to melt, making little roughnesses, and holes, and channels, down which the water trickles to the sea. Thus it is that however regular an iceberg may be when it cracks off from its parent glacier, before it has been floating long its surface is carved with a thousand irregularities. The shapes that are impressed on these huge masses of ice are as varied as the forces at work on them are persistent. The fantastic figures that some of them assume are beyond description.

It seems curious that notwithstanding the exposure of the ice above water to all the attacks of sun and rain that it should be that part of the berg below water that should melt the faster. But it is so. The



effect of the sea is unseen and is only noticeable in its ultimate effect. The temperature of the water is always above the freezing point. And the difference between its temperature and that of the ice is constantly increasing as the berg moves southward. Thus the sea works unremittingly in subduing the huge mass of the ice lying in its domain.

At length there comes a time when owing to the inequality in the loss of ice, the center of gravity of the berg is sufficiently changed. Then the berg, be it large or small, turns over like a porpoise.

We passed a large berg that had recently capsized. This berg showed a surface smooth as glass, as if the water underneath had acted as a kind of sand-paper.

By ten o'clock I had counted nearly one hundred bergs. Several of us watched with absorbing interest a large square mass of ice fully six hundred feet long, and from eighty to one hundred feet in height, which lay directly in our path. Its white sides gleamed and sparkled in the sun, as though set with countless diamonds, small but of the purest water. As our steamer turned to pass it, a large mass of ice weighing, according to the captain's estimate, fully seventy-five tons, broke away near the top, and with a loud report crashed into the sea. In an instant a still larger mass was hurled downward,

and the berg, with a noise like thunder, split into three pieces. The crashing and grinding of these huge masses, tossed about by the suddenly risen waves was awesome, yet it was as nothing compared with the mountain of ice that was slowly turning over in the water. Would its submerged end reach us when it rose? Grasping an iron support, and holding to each other, we waited, with that huge solid wall of ice rising directly under our steamer. A grinding jar, a stop, and we lay over to one side as the frozen leviathan lifted us up, and up, and up, until the steamer was out of water! Would the berg turn completely over and hurl us down amid the grinding ice? It seemed almost inevitable. So curious is the working of the mind that during this moment of suspense, though fully realizing our danger, we most carefully noted the noises of crashing dishes, falling chairs, as well as heavier things, the angle at which we lay upon the ice, and the massiveness, if I can so express it, of the motion of the berg.

One feels power in the dashing waves, but this was as if the whole world were being slowly swayed to and fro. At this crisis, fortunately, the ice beneath us sank down a little in the water, as though tired of its burden, and before it had time to rise again, we were struck by a heavy wave. With a shudder the steamer

started, slid a little on the ice, then plunged into the seething waters, going down, never, it seemed to me, to come up again. But thanks to her staunch timbers, she did come up, though with ice from the berg upon her decks. "A moment is a great thing when crowded full," and this lasted two moments.

The life-boats on the port side were quickly gotten ready, officers and crew working quietly but rapidly.

When it was found, however, after repeated soundings, that she was not leaking, we turned back for a last look upon the wreckage of the berg that covered the water for yards around in all directions. The great mass of ice over which we slid was now nearly stationary, the streak of rust and paint across its face, the mark made by our steamer as she took her plunge, was yet plainly visible, and we were filled anew with astonishment at our marvellous escape.

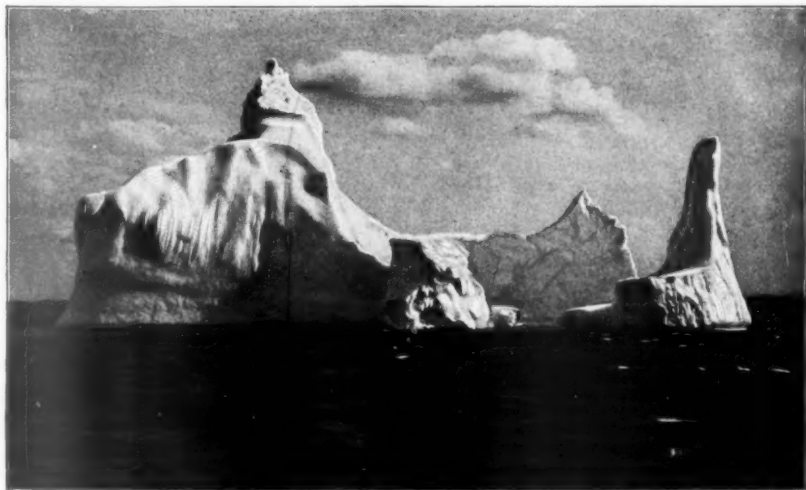
The disturbance in the water caused us to roll excessively for some time, but when again comfortably seated in our steamer chairs, which fortunately had not gone overboard, although they tried hard to do so, I picked up the broken thread of my count, tying it to the wrecked berg as a second starting point. The number soon reached one hundred and thirty-five, sixty of them being in sight at the same time. The largest was fully ten miles away, and looked to the naked eye like an island.



It was more than a mile in length, and under the glass its huge beetling cliffs and solid walls of ice came out with much grandeur.

About this time we witnessed a very fine mirage, three large bergs sharply pictured in the sky hanging upside down, while the image of one unseen below trembled a moment in the clouds, then disappeared. At six o'clock we passed a quantity of large and small portions of ice that covered the water for quite a distance, the remnants of another collapsed mountain.

When the sun dropped into the sea, the swell increased and the waves dashed high against the majestic, slowly swaying bergs. We watched them as before, but there was no longer any pleasure in the





sight; and as the dusk deepened into a moonless night, they grew dark, and seemed to our excited fancy, like huge monsters waiting for their prey. Even

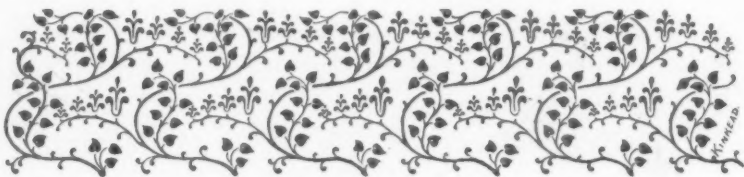
the waves laughed sullenly as they pounded them, and that night our desire for an intimate acquaintance with icebergs was quenched forever.

GENIUS.

BY EDWARD LUCAS WHITE.

HE cried aloud to God: "The men below
 "Are happy, for I see them come and go
 "Parents and mates and friends, paired, clothed with love.
 "They heed not, see not, need not me above.
 "I am alone here. Grant me love and peace,
 "Or, if not these, give me at least release."

God answered him: "I set you here on high
 "Upon my beacon-tower, you know not why.
 "Your soul-torch by the cruel gale is blown
 "As desperate as your aching heart is lone;
 "You may not guess but that it shines in vain,
 "Yet till it is burnt out you must remain."





REGINA was past fifty. She looked in the glass, and she did not like what she saw there. She remembered the face that smiled at her long ago from the depths of the old-fashioned mirror. Ah, that other face! Its wild-rose bloom faded long ago. The lips that used to tremble, as if with joy to be alive, are

thinner now, and they do not tremble. They are firm and somewhat sad. The hair that used to break from its confinement and fall like a golden shower about the wild-rose face is sober-hued now, and stays where it is pinned.

Why should this old Regina, who has seen more than half a century, go to Madame Midas's assembly? And yet, why should she stay at home?

The carriage bears her on through the streets till she comes where the great, illuminated house kindles the surrounding night as with the broad glory of a newly-risen sun. The light shines even upon Regina, and her heart beats faster.

She enters, and the dance is going on. She looks a little sadly at the



dancers. Dancing was for that other Regina, who smiled at her long ago out of the old-fashioned mirror. She sits down in a little recess, and looks on. She has come to that now.

Suddenly a step draws nigh her; and then a voice says: "May I have the next dance; or shall we sit it out together?" And, surely, this voice belongs to the far off years when the other Regina smiled at her from the old-fashioned mirror.

No! it is of now—o' tonight—and he has come who went

away so long, so long ago to the other side of the world. Was it to China that



he went, or to Hades?—and is he a ghost or her old sweetheart? She puts out her hand—her delicate, thin hand, where all the veins show so clearly through the skin that it is like fine parchment—she puts it out.

There is no one looking at them just then; there are so many young people there to look at. He lifts the hand to his lips; and then Regina's lips tremble—they are firm and set no longer.

That night she looks into the mirror, and the face there seems

changed. New life has warmed it, and Regina knows what means youth to a woman.

THE OPTIMIST.

BY ELLA WHEELER WILCOX.

THE fields were bleak and sodden; not a wing
Or note enlivened the depressing wood.
A soiled and sullen, stubborn snow-drift stood
Beside the roadway! Winds came muttering
Of storms to be, and brought the chilly sting
Of icebergs in their breath. Stalled cattle mooded
Forth plaintive pleadings for the earth's green food.
No gleam, no hint of hope in anything!

The sky was blank and ashen, like the face
Of some poor wretch who drained life's cup too fast.
Yet, swaying to and fro, as if to fling
About chilled Nature its lithe arms of grace,
Smiling with promise in the wintry blast,
The optimistic Willow spoke of Spring!



CONVERSATIONS WITH BJØRNSTJERNE BJØRNSEN.

BY HJALMAR HJORTH BOYESEN.

BJØRNSTJERNE BJØRNSEN, the poet and novelist, is known to all the world; but Bjørnstjerne Bjørnson, the man, is, as I have found to my regret, generally misrepresented and misunderstood. A ridiculous story that he had challenged the king to mortal combat, gained, some years ago, currency in the United States, and was reprinted in hundreds of newspapers. Other more or less distorted anecdotes which have reached us through English and German papers bear on their face the evidence of having emanated from his enemies. That a poet, whose business it is to compose verses and fictitious tales, should also be a man

of action, a great citizen deeply interested in all public concerns, seems to most people an anomaly which is both strange and alarming. Nevertheless such is the rule rather than the exception in Norway. The ancient Scalds were fighters as well as singers. The poet Wergeland commenced this very battle for a real independence and absolute coördination with Sweden, which Bjørnson has so manfully and indefatigably continued.

It was in 1873 that he first emerged as a political character. It was then he started that tremendous agitation against the old sleepy minority government which has finally resulted in the establishment

of parliamentarism in Norway. There is, indeed, as yet, no law compelling the king to choose his ministry from the party of the majority in the Storting; but since the impeachment of the ministry, Selmer, in 1882 or 1883 (which was largely due to Björnson's influence), the king, after an abortive attempt at defiance, accepted parliamentarism in practice, if not in principle.

The struggle for full coördination with Sweden, which is yet in stormy progress, has also in a great measure been precipitated by Björnson's powerful agitation in speech and writing, but it is yet too early to predict its issue.

As American ideas have, no doubt, entered more or less openly into this long and bitter campaign, it is of interest to note that Björnson spent about ten months in the United States in the autumn and winter of 1880-81. As I was his companion during much of this time I propose to relate some of my more interesting reminiscences.

Immediately after his arrival he went to Mr. James Russell Lowell's place, Elmwood, near Cambridge, which was then occupied by the family of Mr. Ole Bull. There I went to visit him for a few days, during which we made long pedestrian

excursions into the neighborhood and had some memorable talks. As regards the United States he put me instantly on the defensive. He was struggling mightily with this mighty riddle; but there was something in it which puzzled, distressed, and, I should say, disappointed him. The country was obviously so vastly different from what he had expected. Predisposed as he was, by his own democratic sentiment, in favor of the great republic, he was, for months after his arrival, unwilling to condemn what seemed censurable, because he doubted the correctness of his point of view, and was only anxious to hear the explanations offered by Americans of what seemed anomalous in our social conditions.

First of all, the enormous differences in fortune, far greater than he had been accustomed to in the old world, and the rating of a man's worth in accordance with his financial standing, were terribly disillusionizing to him. I fancy he must have taken that inspiring eighteenth century bugle blast with which the Declaration of Independence opens in a rather too literal sense; and it grieved him to find that most Americans took it in a Pickwickian sense. Legislation here, as in Europe, favored the strong and oppressed the



AULESTAD, BJÖRNSON'S HOME.



BJÖRNSON, FROM THE PORTRAIT BY WERENSKIÖLD.

weak; and the man who came into the world prenatally handicapped by poverty, poor blood and vicious proclivities, was made to bear, at his every step through life, a proportionately heavier burden than his favored brother.

"You may squirm as much as you like," he exclaimed; "but the fact cannot be blinked that to socialism in some shape or other belongs the future. The present crude theories which the justly discontented of the earth are propounding are only significant as the first serious agitation of the greatest of problems. It is so pleasant to think that God made the earth for you and me who promenade about in broadcloth, eat and drink our fill, and sip a moderate amount of pleasure from a variety of experiences. But have you ever known what it is to be hungry, my boy—to be so ravenous that your entrails scream, and yet not know where to turn for a bite of bread? Has it ever occurred to you how the world must look to the hungry man? We may lull our uneasy consciences to sleep with the idea that no man need be hungry who wants to work. But that is, after all, a very transparent lie. There are thousands

who are hungry and who cannot get work, or only at wages which are but a modified form of starvation. Now, there is no doubt in my mind that the modern state, whether you call it monarchy or republic, is a mere league of the powerful to keep their hold upon the good things of life, because a wider distribution would result in a smaller share to each. I am not in favor of any wild spoliation scheme, but I am in favor of legislation which will not discriminate in favor of the strong, at the expense of the weak. Civilization must be judged, not by the splendor of your Rothschilds, your Vanderbilts and your Astors, but by the average intelligence, comfort and well-being of the great people itself, in field, in mine, and in factory. The progress of civilization is to be gauged by the admission of an ever larger and larger proportion of the population to that degree of prosperity which will enable them to live decent, laborious, but yet comfortable lives, and not be crushed into mere soulless machines of toil. I am so constituted that I must sympathize with the under dog. It is the many who toil and starve and suffer whose lot I have at heart;



BJÖRNSSON ADDRESSING A POLITICAL MEETING.

it is the poor, the small, who cannot rise and assert their rights—it is these I love; and I believe that that country is the strongest, the greatest and the most civilized, which is covered with millions of modest but contented homes; not that in which the splendor of a few hundred palaces is supported by the wretchedness of a million hovels."

It was early in January 1881 that Björnsson came to New York, and took rooms in an old-fashioned house in Second avenue, near Stuyvesant square. I saw him almost daily during the three or four weeks he spent here in the city, preparing for his extended lecture tour through the Norwegian settlements in the Western States. Faithful as ever to his principles, he refused to go into society, and politely declined all invitations from those who were anxious to lionize him.

"Do you suppose I am going to make a dancing bear of myself for the amusement of those idle triflers?" he said one day, in response to my expostulations; "I have seen quite enough of that class of people in Boston. They are very much the same the world over."

"But you are quite mistaken," I insisted, "there is a very marked difference between New Yorkers and Bostonians, and as a mere matter of literary interest you ought to go into society and make a study of its looks and manners. Now, to mention only one thing: New York ladies are handsomer—that is, the average personal beauty is higher—than in Boston—"

"Yes, that is it," cried Björnsson, with a great laugh, "the ladies, the ladies! I have heard it a hundred times that the American ladies were so wonderful. Truth to tell, I really believed it. I came with great expectations. But now, do tell me, what they have in advance of Norwegian women, for instance, except that they are better off, and consequently, dress better?"

"They are, as a rule, far more beautiful," said I.

"Beautiful? Well, now, what constitutes beauty? They have soft skin, well-cared-for persons, good clothes. But the soul, the soul, my boy, that gazes out through this transparent covering is vain, flimsy, self-conscious, and filled with a thousand petty frivolities. Mere regularity of features counts for little with me, if there is no nobility of soul that shimmers

through. The American women I have met have, with few exceptions, been of this type. They demand much of life, but they have no idea that life has the same right to demand something of them. They are clever—with a sort of flimsy, superficial cleverness, and they know how to assert themselves and get the most out of their husbands and fathers. But they have been wofully spoiled. They never can get away from their own dear, little, pretty selves; they cannot lose themselves in a great thought, a great idea, and learn the blessedness of living for something better than vanity and flirtation and social tittle-tattle."

"You have, indeed, been unfortunate in your acquaintance with American ladies," I observed, "but you are too hasty in your judgment. The kind of women you describe exists, indeed, here as elsewhere; but I contend that they are not typical of American womanhood."

"Well, I was long disposed to make that admission, but a few weeks ago I attended a Woman's Rights convention, and felt confident that here I should at last find women who had emancipated themselves from the paltry frivolities of their sex. But there, too, though there was some good speaking, there was much the same rivalry in dress, and much vain display."

"I am afraid, Björnsson, that you have in you something of Shelley's millennial impatience. You expect too much. You demand a too radical reconstruction of the female mind. It will take centuries to accomplish what you ask for today; and I confess I am glad I was born before woman has been reconstructed on your lines."

The conversation here took so private a turn that I must refrain from reporting it.

One evening, when Björnsson dined quite informally at my house, an incident occurred which, though insignificant, afforded us much amusement. When he sat down at table, he looked with a portentous frown at the turkey, and I saw that he was none too well pleased.

"Perhaps you don't like turkey, Björnsson?" I asked.

"O yes—O yes," he replied, dubiously; "but, for God's sake, give me none of that *stopping*!"

We understood, of course, that by "stopping" he meant stuffing; but the

former word has been adopted in my family in commemoration of the incident.

Presently, observing a glass of claret at his plate, he took it up, looked at it, and, turning to the hostess, asked: "Do you expect me to drink this?"

Though a trifle alarmed at so extraordinary a question, she answered with the placidity and ready tact of an American lady:

"Certainly, unless perhaps you are accustomed to another brand. But I think you will find this good."

"Ah, madam, you misunderstand me," Björnson exclaimed; "I don't doubt that it is good, but I have always found that Americans put wine on their table, not to drink, but as a text for a temperance lecture."

"You have, indeed, had an extraordinary experience," the lady replied.

"Why, not at all. It has happened to me more than once. At Mrs. X's house, the other day, I innocently drank of the wine set before me, thinking that that was what it was for. Whereupon my hostess gave me a lecture on the awful consequences of drink, related some harrowing instances of young men who had gone to the devil, in consequence of merely sipping a little claret or sherry at a dinner party; and she neatly computed the chances, in my own case, of filling a drunkard's grave."

One evening, during his sojourn in this city, Björnson delivered a lecture in Tammany hall, on "The Prophets." His unorthodoxy was then a matter of great notoriety, and the Scandinavian press, both at home and in the west, was acrimoniously discussing what sort of reception they ought to give a man who came to them with the avowed purpose of undermining their Christianity. I tried with all my might to dissuade him from delivering his lecture on "The Prophets," and advised him instead to read from his writings (for he is a magnificent reader), or to choose some patriotic theme. But persuasion was in vain. What particularly scandalized the Lutheran clergy was Björnson's declaration that he did not believe in a personal devil. Luther had believed in the devil, and even flung his inkstand at him; and the fathers of the church, not to speak of the Bible itself, had declared that he went about like a roar-

ing lion, seeking whom he might devour. This by way of explanation.

As I was standing in the crowd before the ticket-office, I found myself next to a half-drunken Norwegian sailor who was swearing valiantly and pushing with all his might.

"Do be quiet, man!" I said. "Why are you pushing so?"

The man ripped out a tremendous oath, and declared that he wanted to get at Björnson.

"What do you want to get at him for?" I queried.

"I want to thrash him within an inch of his life."

"Thrash him? You'd better think twice before you undertake that job. He could pulverize you, and ten more like you, drunk as you are."

"I tell you, I want to thrash him!" the man repeated, with imperfect articulation.

"But why?"

"He says he does not believe in the devil. But I'll—blankety, blank—teach him to believe in the devil. I stand on biblical ground, I tell ye. Let me only get at him, and I'll—blankety, blank, blank—give him one straight in the nose, that'll make him wish himself home with his mother. For I stand—on the ground of Christianity, I tell ye."

I had all I could do in keeping the man away from Björnson, for he was not easy to argue with, being firmly convinced that a sound thrashing was all that was required to induce the poet to believe in the devil and make him perfectly orthodox.

My latest reminiscences of Björnson date from the summer of 1891, when I made him a visit of a few days at his estate Aulestad in Guldbrandsdal. The prospect of this visit had, indeed, had more to do in luring me back to Norway than any other anticipation. I had hired a horse and karyol from Lillehammer in the morning, and arrived at Aulestad at about eleven o'clock. I recognized Björnson's imposing figure from afar, standing at the foot of the flag-pole. The moment he caught sight of me, he waved his hat and ran up the stars and stripes. It was a large, beautiful flag, which unfurled bravely to the breeze. On the flag-pole on the other side of the house the "pure" Norwegian banner was fluttering, giving

me quite a festal greeting. Nor was I disappointed in the reception which was accorded me by the master of the house. His warm and robust straightforwardness and simple friendliness took my heart captive, now as before. Having conducted me to my room with many cordial assurances, he recaptured me as soon as I emerged, and plunged headlong into a discussion of American politics and social conditions. Was the world moving forward or backward in the United States? Was life getting easier, decenter, more comfortable for the poor man—the average man,—or was it getting harder, more grinding and desperately soul-crippling? What was the true inwardness of this outbreak of excessive protectionism and opposition to immigration? Etc., etc. I answered all these questions to the best of my ability, though every now and then I found my Norwegian vocabulary running short and I had to resort to English. But that Björnson would not permit.

"Why, speak your mother-tongue, man," he said; "just plunge in, and the words will come."

"Yes, but they are so often the wrong words," I pleaded.

"Never mind; but speak Norwegian."

Well, I accepted his advice, but made during the next half-hour the humiliating experience that I had partly forgotten my mother-tongue. I could read it as well as ever; but it was no longer the medium of my thought, and whenever words were needed, out of the common run—words of more delicate shades and subtler meanings—they came to me in English and I could not find their Norwegian equivalents. My conversation therefore flagged, and for the first time in my life I felt ill at ease in Björnson's presence. I had an awkward feeling of misrepresenting myself by my clumsy vocabulary. Having always delighted in my command of language—as a strong swimmer delights in moving with vigorous ease through the bright and pliant water—I had an acute sense of my shortcomings; and I gave up the attempt to pour forth the full flood of thought that rose and overbrimmed my mind at each of my host's questions. There was something beautiful to me in his eager interest in the social problems, and the aspect they assumed on our side of the Atlantic; and I was therefore

doubly sorry not to acquit myself better.

Björnson's house does not, in its outward appearance, differ much from the farm-houses of the prosperous peasants of Guldbrandsdal. It is a roomy, two-story building, rising against a background of meadow and forest, and without architectural pretensions of any kind. At a distance of a few hundred yards lies another dwelling-house, nearly as large, in Swiss chalet style, which is occupied by Björnson's married son Erling, who has charge of the estate. A servants' hall and a group of outhouses climb the hill-side behind, and a broad stretch of cultivated field slopes down toward the highway in front of the mansion. In the bottom of the valley runs the river Gausa, a tributary of Laagen.

The first remark Björnson made to me, when I had struck the above-recorded conversational snag, was a little startling.

"Don't you want to take a bath?" he asked, with his brusque abruptness.

"Well—yes—I have no objection," I answered, hesitatingly.

"Very well. We'll all go!"

And promptly he called together the entire male portion of his household—beside himself and me, two sons and two guests—and, armed with big bath-towels, we started across the fields toward a mountain stream which came plunging down the rocks with foam and roar and merry hubbub. A primitive shed, open toward the water, was visible among the alder bushes on the bank of the stream, and a broad platform had been built, a little aside from the falls, whither a swift and voluminous current was conducted by means of a wide wooden gutter. With paradisaical immodesty we undressed in the shed, and one by one mounted the platform in *puris naturalibus*. Björnson went first, and though the chilly stream, falling from a considerable height, hampered on his back until he was red and blue, he called to his son to go and turn on more water. He snorted with delight as he stood there, and emitted all sorts of gleeful shouts through the blinding shower that enveloped him.

"Ah, that was good, boys!" he cried, as he emerged, like a large sea-god, preceded by shivery gusts of spray. "Now, Boyesen, it is your turn."

I did not care to be backward, of course,

though I had a suspicion that that column of water was strong enough to knock me off the slippery platform and land me among the boulders below. I braced myself, however, with all my might and succeeded in keeping my footing.

"If you want more water," Björnsson yelled, "Erling will go up and turn on more."

I fancied for a moment that he was joking; but a glance at his frank and serious face convinced me that he was making the offer in perfect good faith. And it was in perfect good faith, too, that I declined it. I walked about with a headache for the rest of the day, in consequence of the tremendous drumming of the water on my cranium; but the next day, when I repeated the experiment, it caused me no discomfort. I had, however, then learned how to protect my head, and receive the full force of the current on my back and shoulders.

As we walked back together after the shower-bath, I noticed a large building, near the ravine, in front of which a dozen decrepit individuals were reclining, some smoking and others idly sunning themselves.

"What kind of an institution is it you have erected there, Björnsson?" I asked.

"Why, that is the poor-house."

"But it seems to me it is on your property."

"So it is."

"Then, do *you* support the paupers of the parish?"

"No, I don't support them. But that's a long story, and I'll only give you the gist of it. There was no one who was willing to have the poor-house for a neighbor, because it would necessarily depreciate all adjoining property. So I offered the plot here."

"And you enjoyed teaching the Christian heresy-hunters a lesson in brotherly love?"

"Yes, perhaps I enjoyed it. I shouldn't wonder if I did. These excellent pious people who are so tremendously orthodox, and hold me to be eternally lost—because I don't believe in the devil and a lot of other things, indispensable to salvation—they needed some such demonstration, though I don't suppose, for a moment, that they give me the least credit for it. You know even the good deeds of the un-

believer are sins and count against him."

In the afternoon, Björnsson proposed that we should take a walk. As we started down the hillside, we met his son, driving some machine—I have an impression it was a mowing machine. Björnsson stopped to talk with him about some agricultural matter. As he rejoined me, he pointed to a considerable piece of land on the other side of the highway and said:

"Do you see that field there? That is my contribution to my fatherland."

"How do you mean?"

"Well, I reclaimed that from the forest. I broke up the stumps; I carted off the stones; I tilled, harrowed and manured it, and I spent twice, if not three times as much money on it as it is now worth."

"Why did you do that?"

"Well, let us call it patriotism. If our fathers had not done a good deal of such unprofitable labor before us, where should we be now? I never look at that piece of land without satisfaction."

"I can well imagine it. I wish I could have before my eyes such a tangible result of *my* labor, convincing me that I had not lived in vain."

Björnsson here struck a wood-path, and the conversation took a fresh turn. He fairly cross-examined me regarding the social and political conditions in the United States, and then plunged into the inexhaustible question of Norway's relation to Sweden. It was no easy task to keep up with him as he broke through the underbrush with his long, energetic stride, though every now and then he paused to call my attention to the beautiful view of the valley, or to point out to me some farm that suggested some interesting incident or a bit of personal history. We arrived at Aulestad, at the end of two hours, with a ravenous appetite for supper.

Björnsson's hospitality is, like himself, free, generous, open-handed. Though his house is not, like that of a Norse chieftain of old, built across the highway, very few (unless it be political opponents) pass Aulestad by without stopping for dinner or spending the night. Only in very exceptional cases, however, does he interrupt his regular habits of work, bath and exercise, for the sake of any guest. There is a seat at his table, and a place at his side on his walks, for every agreeable

companion who will accommodate himself to the routine of the house, and who can make use of all the opportunities for entertainment that are placed at his disposal. But immediately after breakfast the host retires to the large front room on the second floor, which serves him for a library and study; and woe unto him who then dares disturb him! You may hear him pace up and down the floor, while composing, and occasionally seating himself at his desk to write down the result of his thought. He was, at the time of my visit, at work upon a drama or dramatic poem (which has not yet been published), somewhat in the style of "Over Evne" (Beyond his Strength), dealing with the psychology of the faith in miracles. His Cantata of Peace he had just finished, and read it to me with the most beautiful and expressive elocution.

Beside the very considerable number of guests which, in the summer season, makes Aulestad populous, the visitor is likely to notice two or three modest and retiring female inmates of the house, whom Björnson is apt to introduce to him

by some such phrase or other as this: "This is our good friend X. X., who has consented to spend some time with us;" or,

"Let me make you acquainted with our good friend X. Y., who is making her home with us for the present."

The straightforward candor and cordiality of his manner is never more notable than when he addresses these women. They dine at his table, make themselves useful, if they are so disposed, in the house, and are treated as members of the family. A literary friend, who

had paid a recent visit to Aulestad, gave me the following explanation of their presence:

"Björnson," he said, "is the most large-hearted and unprejudiced man I have ever known. He maintains, truly enough, that there is a monstrous injustice in the penalty which women incur by the same offense which is so readily pardoned in a man. When Björnson hears of a case where some unfortunate girl has been placed in a compromising position—when a helping hand might perhaps save her from social ruin and restore her to

usefulness and self-respect—he says to his wife: 'Caroline, can we not do something for her? Can she not stay with us till we can find her something better to do?' And his wife who nobly seconds him in this courageous charity, will answer: 'Yes, let her come to us.' Then she writes a letter to the girl in question, and you may imagine how joyously her invitation is accepted. Björnson then, through his many connections, exerts himself to restore the girl to her place in society, to straighten, if possible, the tangled



BJÖRNSSON IN 1881.

skein, or, perhaps, open to her some suitable activity in the Scandinavian settlements in the United States. And to the honor of his neighbors and countrymen be it said, that he exposes himself to no scandalous gossip by such action. For Björnson's character is so well known, through and through, that even his enemies, who in political controversy will leave him no shred of honor, have too much decency to assail him from that side. He is—he is—well, he is—in that regard, what Aristides was to the Athenians."

The evenings at Aulestad were most delightfully spent at Mr. Erling Björnson's annex, where there was a magnificent music-room. There Miss Gina Oselio, the Norwegian prima donna, sang; and her fiancé, Björn Björnson, who is an actor gave us some capital recitations.

Björnson is the most remarkable instance I know of the force of a great personality. Without wealth or the authority of official station, he has, by dint of genius

alone, made himself a power in the land, second perhaps to none. Where he is, beats the heart of Norway. To mention his name (as Dr. Brandes has said) is like running up the national banner. Like a great earl of the olden time, he sits upon his estate in defiant security, in spite of hatred; and all that are freest, best and noblest in Norway—nay, in all Scandinavia—recognize in him their chieftain and make pilgrimages to him.

ACTÆON.

BY EDGAR FAWCETT.

LONG had I known that steep wood you may enter
 Best where the labyrinthine laurels cluster—
 Long heard that in its breezy and pool-pearled center,
 With gold hair showing o'er her snow-chaste luster,
 The goddess bathed, of rough intrusion fearless,
 Ringed by her maids, herself a maid of mien sublime and peerless.

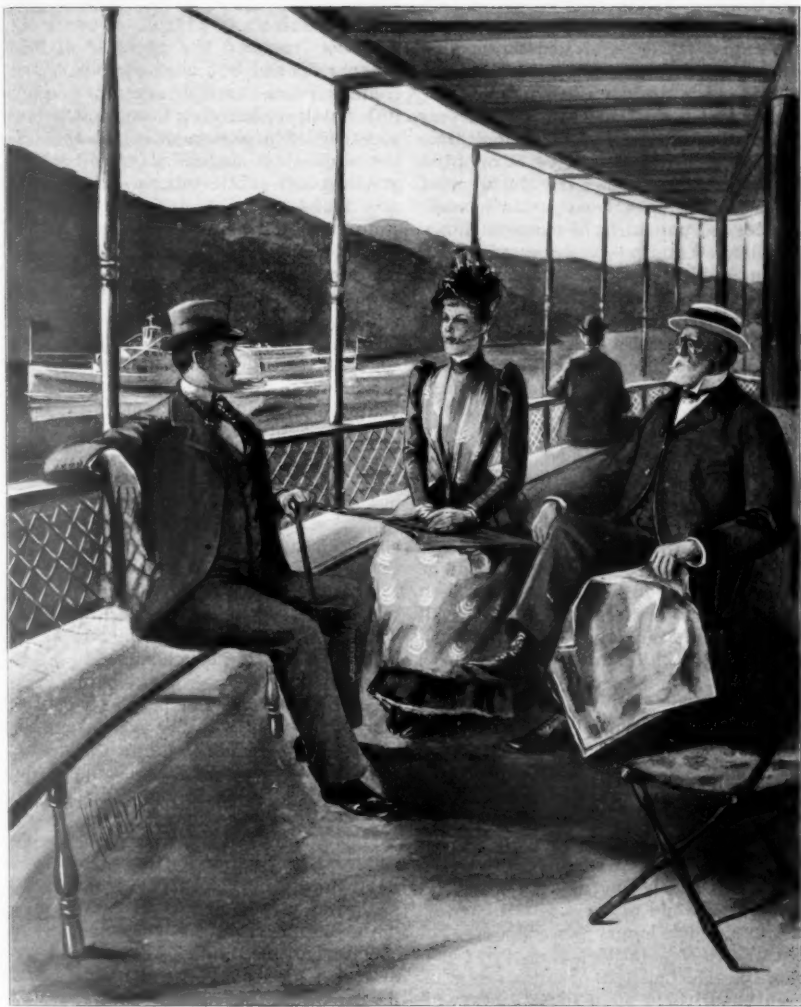
What dolt in all Bœotia knew not surely
 The sheer-perched grove no mortal had invaded,
 Where every flickering leaf shone out more purely
 Because of the immaculate Shape it shaded?
 How oft in woodside strolls, when but a stripling,
 Heard I from this fair mountain-slope æolian laughter rippling!

"Thither forbear with impious feet to venture,"
 My kindred warned, in eager tones yet tender;
 "Hot on his head shall fall the fury and censure
 Who scans but one brief instant her white splendor.
 Better the boar's rude tusk to fleet death called him
 Than that those luminous limbs of hers and sea-green eyes appalled him."

And yet, that noon, while my tired dogs were lolling,
 Loose-tongued from chase, on turfy emerald reaches,
 With folly I spurned the wiser will controlling
 All that is best in man. . . . Great murmurous beeches
 And shadowy firs before my stretched hands yielded;
 I glided slowly along—then, shuddering, my rash gaze I shielded.

Nude, lovely and terrible, I saw her clearly . . .
 Yet from that hour the sun in heaven turned sickly;
 The violet valley-mist grew vapor merely;
 Tame the pale cataract from the crag shot quickly.
 For so the immortal in her might had chidden
 This insolence of mine entrance past the bounds of the forbidden.

And thus, being shorn of every earthly gladness,
 I drag my days out. . . . Silly and false the story
 That these my faithful dogs were fired by madness,
 Fought for my body and ate its fragments gory.
 A deadlier vengeance yet from life hath reft me:
 I have drained all joy at one wild draught—the lees alone are left me!



A REVERSIBLE LOVE-AFFAIR.

BY THOMAS A. JANVIER.

I.

WHEN Mr. Philip Harley bought a ticket for Albany by the Day-Line boat, and thence onward to Niagara by rail, his purchase and the journey

sequent to it were made in literal fulfilment of a vow taken solemnly before the shrine of Love. Under the terms of this vow every rod of the journey would have for him its separate torturingly sweet memory of his late Constance; and the

calculated result of the expedition as a whole would be the reunion of his own heart with that of the young woman whose god-fathers and god-mothers in baptism had bestowed upon her this charming but slightly illusive name.

It was on the Albany boat, just a year before, that they had met for the first time after his return from ten years of artist life on the other side. In the interval she had developed from a tow-headed, long-legged nonentity of fourteen into a tall blonde ecstasy—yet an ecstasy with extreme self-possession and an unusually well-balanced mind—of twenty-four. The transformation was so complete that he did not in the least recognize her: but he longed to paint her the very moment that he laid eyes upon her as she stood near him in the crowd upon the dock.

Then came the delightful discovery—after the boat had got under way, and he had planted himself where he could look at her—that she certainly was none other than Constance Marden: for there beside her, obviously paternal, was Mr. Roger Marden—who had been the close friend of Philip's father and whom Philip had been accustomed to address as Uncle Roger all his life long. With this clue to her identity supplied, Philip instantly recognized her; and so, in five minutes, he and she were talking away together on the assured basis of their own old acquaintance, backed by the still older family friendship—and with a lively interest on the part of each to discover what manner of creature had come out of the chrysalis which in his case was just opening and in her case still was closed when last they had encountered each other, ten years before.

But at the end of their talk that day, and for a much longer period, Miss Marden was to Mr. Harley a fascinating perplexity. He had left America a boy of twenty, to whom, in a general way, all women were alike. During his ten years in Europe—seeing little of his fellow countrymen and less of his fellow countrywomen—he had not encountered a single member of the class of which Miss Marden was a type. To such an uninstructed person the type was puzzling. At a first meeting with this highly-finished specimen of American young ladyhood she produced an impression of pleasing warmth, of temperament, quite in keeping with

her rich blonde coloring and her rounded lines. Later, this temperamental impression wore away a little: as closer observation revealed the presence of less sharply defined but more deeply seated characteristics—a certain assured accuracy in her always-charming talk, a touch now and then of positiveness in the tone of her admirably modulated voice, in her gracious air a subtle intimation that she was abundantly able under any circumstances to take care of herself—which characteristics bore somewhat the same relation to her warmth of manner that was borne to her rounded outlines by the underlying bones. A profound student of human nature, with a thorough knowledge of the interesting class of which Miss Marden was a specimen, would have ventured the opinion that these less conspicuous traits were, and always would be, the dominant traits of her character—with a moral result not less aggressive and relentless than the physical result which would have been produced had she worn her bones on the outside. But to Mr. Harley, who possessed a very fair knowledge of many varieties of human nature yet lacked the special knowledge which would have enabled him to arrive at this interesting conclusion, Miss Marden, confessedly, was a ravishing mystery quite beyond his power to solve. Nor, in truth, had he any very strong desire to solve her. As an artist, he was fairly intoxicated by her beauty—and that, for the time-being, was a sufficient joy.

Miss Marden, on the other hand—being endowed with a superior intelligence, and having fully developed her dental-visual apparatus—encountered in Mr. Harley not a single quality that perplexed her in the least. Indeed, after her five seasons of New York society, the man who would have puzzled this astute observer would have been hard to find. By means of her well-ordered and well-used system of standards she promptly took his intellectual and social dimensions and assigned him to his appropriate place in her category of his sex.

Coming from such an expert in the gauging of male humanity, all the more flattering was it that the rating which she gave him was high. But, of course—she was quite incapable of making a mistake

in a matter of this sort—it was deserved. What with his clean-cut figure and a certain air of distinction in his carriage, his brilliant talk that had in it such touches of delicate yet subtly pungent venom, his ability (developed by an extended practice) to summon on occasion a singularly well managed look of sympathetic tenderness to his rather unusually good brown eyes—to say nothing of his being fresh from Paris and full of the spice and sparkle of that cheerful and frankly sophisticated town: all these things went together to entitle him to the high rating that he received. Possibly, too, her recognition of his obvious admiration of herself had an appreciable share in shaping her management of the scales.

II.

When the matter of their respective destinations was opened Philip diplomatically refrained from committing himself until Constance had exhibited her own and her father's plans: a month in the Catskills, then to Niagara, from there to Montreal and Quebec, down through Lake Champlain and Lake George to Saratoga, and then to Newport until the time should come for returning to town. Philip replied to this statement with great presence of mind, and with an easy disregard of the eternal truth and of the long ticket in his pocket and of his carefully thought out scheme of combined fishing and painting in the Canadian woods—with a disregard of everything, in short, but his burning desire to paint her for an exhibition picture—that his own plans for the summer were still to be made; that he had not got them in shape beyond the first month.

But he was glad to say, he continued with an engaging frankness, that his first month was to be passed in the Catskills. Possibly he might meet them there. To which of the hotels were they going? And when Constance said that her father always made his quarters at the Mountain House—which ancient hostelry was endeared to him by the fact that he had spent a week there on his wedding journey, thirty years before—Philip quite outdid himself in his manifestations of ingenuous surprise and satisfaction because that was the very hotel to which he was going himself.

That month in the Catskills was decisive (for the time-being, at least) of their respective destinies.

For more than a year Constance had



"DOWN IN THAT WATERY WHIRLWIND OF A PLACE HE HAD PRACTICALLY SAVED CONSTANCE'S LIFE."

recognized the sociological fact that marriage was a conventional necessity. She perceived that the young woman who remained a spinster from choice was set down by the world as "odd;" and she knew that oddness was an aggressive variety of bad form. Marriage, of course, had attached to it many very serious drawbacks; but she fancied that the most serious of these drawbacks—the merging of her own individuality and her own will in the will and individuality of another—she would avoid; or, at least, if psychical conglomeration of this nature did take place that she could render it innocuous by constituting herself the dominant nucleus instead of the subject periphery of the compound. Holding these views, she had made one or two tentative attempts to realize them; but, not being very earnest in her purpose, she had not arrived at any positive results. She had decided definitely, however, that her pleasant drifting with the stream must come to an end without farther serious delay. It was time for her to establish herself in life, and to this superior necessity must give way her whim for prolonging her maidenhood. She had not the remotest intention, of course, of endangering her personal comfort for life by undue precipitancy. Inconsiderate haste was not to her liking; but she was resolved to put promptly through his trial paces every eligible young man who fell in her way, and from the first one who proved to be sound and kind to accept an offer of marriage with considerate speed. That such an offer would be made went without saying. Miss Marden knew the rules of the game of which the event is matrimony, and she also held the cards.

On the side of Mr. Harley a different line of inductive reasoning had led to a conclusion that practically was the same. At thirty, a reasonable man who has harvested a tolerably large crop of the *avena fatua* begins to think seriously of turning his agricultural energies toward the growth of the *avena sativa*. Mr. Harley, commendably illustrating this rule of discreet moderation, had returned to America for the definite purpose of marrying and settling down. His position in the art world was fixed, and he perceived that it would be to his advantage to fix his position in the social world as well. Matrimony of

the sort that he had in mind—an alliance with a woman of good birth and possessing a fortune nearly or quite equal to his own—would accomplish this desirable result: nor would it cut him off from growing quietly in some retired corner of his matrimonial estate, as occasion served, a refreshing wild oat or two to remind him of his many blithe harvests of the past.

Meeting with their hot young hearts thus ready to go a-blast the very moment permission came from their cooler oldish heads for the conflagration to begin, their month together in the Catskills sufficed to fan into a brilliantly flaming condition the carefully laid fires of their theoretically spontaneous love. When Constance and her father went on to Niagara, Philip went with them quite as a matter of course; and at Niagara the blissful climax of their judiciously conducted idyl was attained.

It was during the period of exaltation immediately succeeding this climax that the solemn vow to which reference has been made was taken by these thrilling lovers in the presence of the Cataract and before the shrine of Love. The vow was suggested by Constance; whose private feeling was that it would be in the nature of an accident insurance policy upon their betrothal, and whose professed reason for it was that it would cast upon their compact a halo of romance. To do her justice though—for this was almost her first really serious engagement—her desire for romance was not wholly assumed. Philip, knowing in a general way that curious vows of one sort or another were the recognized concomitants of the sort of love-making that he thus for the first time was engaging in, and not wishing to display a too-suggestive ignorance of the requirements of his new rôle, acceded to the proposition with all possible alacrity. In his case, moreover, the dramatic situation that a fulfilment of the vow involved appealed to the artistic side of his nature warmly.

Being thus harmoniously agreed in the premises, they vowed that if ever for any reason their engagement should be broken—the smile on the face of Constance at this point was very tender and sweet, and there was a whole volcano of perennial affection in the clasp of Philip's hand—they would repair instantly to Niagara and there would revisit the several

places in the immediate vicinity of that stupendous cataract which had been especially hallowed by marking definite advances in their joyous journey of love. The final station of this pilgrimage, of course, would be the spot where they then were standing in the moonlight—the bridge leading to Goat Island—and where they had but that moment plighted their troth.

"And then you know, Phil dear," Constance said in deliciously soft tones, while a ravishing light shone in her beautiful eyes, "no matter what may have come between us the dear love that we now have for each other will come back again instantly to our hearts."

Philip was quite upset by this utterance—Constance did it so uncommonly well.

III.

As the event proved, Miss Marden had been inspired by the spirit of prophecy. Their plighted troth had broken—had gone all to pieces, in fact—and Mr. Harley was making his second expedition to Niagara (partly, at least) because the conditions had arisen which were contemplated in the terms of their vow.

According to Constance's theory, a return to Niagara would compel the broken troth to mend again. He did not regard this result as at all probable, it even seemed to him distinctly undesirable; but—since he had promised—he felt bound to give the troth a chance. It is necessary to add, however, that he had qualified his vow by construing the meaning of the word "instantly," as therein used, with a certain degree of freedom. Actually, he had deferred his visit to Niagara long enough to make it coincident with the visit there of a certain little May-blossom of an Eleanor Langton in whom his interest was very serious indeed. And the farther explanation must be made that because of the May-blossom phase of the matter his journey has been referred to as a literal and partial, rather than as a spiritual and total, fulfilment of his obligation.

The disruption of the scheme of eternal affection which Miss Marden had planned and which Mr. Harley had accepted with enthusiasm had come about gradually. In the main it had been due to the application to their own case of the theorem

in psycho-dynamics which affirms that when an irresistible will encounters an invincible will the most judicious course for both is to separate. Farther investigation of Mr. Harley's character had convinced Miss Marden that her plan for animating their two souls with but a single thought, and that thought hers, would not work. Beneath a truly courteous exterior he possessed—as was made manifest to her upon various occasions—the obstinacy of a mule. Contemporaneous investigations conducted by Mr. Harley had enabled him to grasp at least the general outlines of Miss Marden's well-poised character—with the resulting conviction that if the joy of painting her could be purchased only at the cost of living with her such joy would come extravagantly high. Moreover, as was natural to a man of his years and liberal experience engaging in matrimony, Mr. Harley had no liking for peaches gone bald of their bloom. What he wanted was a wife all freshness and innocence—and while he was satisfied, of course, that Miss Marden was not seriously lacking in those gracious characteristics, he also was satisfied that, to put it mildly, she did not possess them in excess.

In a word, each of these discriminating lovers had discovered that the other was both more and less than the matrimonial article desired: which conditions—plus, in his case, the May-blossoming and very peach-bloomy Miss Langton; and, in her case, an eminently pliable Teddy Rawlings—had led to her writing to him from Bar Harbor only a week before that it all had better end. As in the sincerest depths of his own heart he was quite of her opinion, he replied briefly that he thought so too.

And then it was—only waiting long enough to make sure that he and his May-blossom would arrive at Niagara on the same day—that he came aboard the Albany day-boat, as was stated at the outset of this narrative, in literal fulfilment of his vow and in company with what should have been—but actually was not—a breaking heart.

IV.

On the steamboat Philip established himself—therein yielding to a certain inherent sense of dry humor—as nearly as

was possible upon the precise spot where he and Constance had sat together during that joyous day that now was a year behind him on the highway of Time. But he maintained his position under circumstances of trial.

Directly beside him, their camp-stools almost exactly where Constance and her father had been seated, were three young girls who evidently had come out for what they themselves probably would have described as "a daisy time." In the American fashion, they were without a protector; but—also in the American fashion; and differing from Miss Marden, as it occurred to him, less in kind than in degree—they had every appearance of being able to take care of themselves. Their simple concept of happiness upon an excursion obviously was perpetual eating, and to satisfy it they had brought with them a prodigious supply of food. Two of them ate and at the same time engaged with much vivacity in giggling talk. The third ate mechanically—yet with a fine vigor—while her whole soul seemed to be absorbed in a paper novel of which the high-toned title was *The Baron's Will*. Before the boat was abreast of Yonkers these young persons had attacked a big box of ham sandwiches. Thence they went on in regular progression to pears, cream-puffs, apricots, macaroons, bananas, sugar-plums. The sugar-plums evidently completed the cycle, and they then began again on the ham sandwiches—for which the reader of *The Baron's Will* reached out her hand without raising her eyes from her book; and even—with an exquisite literary abstraction—seemed to time her far-reaching bites by the paragraphs of the entrancing page.

These omnivorous young women and their unhallowed feast still farther appealed to Philip's sense of dry humor. "By Jove, what a twist she has! How she did gorge at the Willoughbys!" he said to himself—which reflective observation bore not upon either of the young people before him, but upon his late Constance: and was all the more unfair because he himself had urged her to eat freely on the occasion to which he referred, and because he uniformly had commended in her what he had been wont to term her honest appetite.

However, it was with a very honest ap-

petite of his own that he ate his lunch, presently; and then betook himself to the upper deck to smoke his cigar while enjoying the run past the Catskills. Because of his artistic nature he grew quite sentimental as he watched these very beautiful mountains slowly drift past him, and at the same time thought about the curious pathological process which had gone on there when he and Constance effected their inconsiderate exchange of what they were pleased to call their hearts.

But his sentimentalism, being purely objective, was not at all painful and did not disturb his physical functions in the least. At Albany he ate an exceedingly substantial dinner; and he slept so soundly that he did not waken even with the jarring incident to the coupling of his car, about midnight, to the north-bound train.

V.

The morning was bright and fresh as he drove from the railway station at Niagara to the Cataract House—just such a morning, he observed, as the one upon which they had arrived together a year before. In the hotel passages were the same pale sad-looking scrubbing-women whom he and Constance had decided were the widows of the various reckless persons who, as the newspapers put it, had suicided over the falls. He was shown to just such another dingy bed-room, and to just such another dingy bath-room, as on his previous visit. Even the breakfast to which he was condemned—a dull, colorless, unimaginative breakfast—was identical in every particular with the meal which he and she had eaten together and had found under those optimistic circumstances almost tolerable.

Being of a philosophically analytical habit, Mr. Harley observed with a good deal of interest that this chain of reminders of his inconstant Constance, in conjunction with the new conditions under which they were aroused, produced within him a state bordering upon double consciousness: a sort of phantasmal affection for the old love that he actually was off with running parallel with the substantial affection for the new love with which as yet he was not quite on. However, it was the new love that he really was in earnest about—so much in earnest that he chafed

and fumed at a great rate when his inquiry at the hotel office developed the fact that Mrs. Langton and her daughter were not due to arrive until well on in the afternoon.

By way of killing this dismal time of waiting he went off for a walk; and presently realized—as he came in succession to the various view-points about the Falls and recalled at each some tender memory of the previous summer—that he was fulfilling his vow with a rather startling exactness. And then, oddly enough, he began to take a very unreasonable amount of interest in his memories—for even when a love-affair becomes a mummy it still is just a little bit alive.

On the bridge leading to Goat Island he stopped at the spot where he and Con-

stance had met: the bench, near the stair coming up from Luna Island, at the outlook over the American Fall. They had walked to this bench on that fateful night and had rested there for a while in exquisite solitude. Now, however, in broad daylight, the supply of solitude was decidedly scant. As though projected by a slow-moving catapult, an unending procession of people shot up the stair into his immediate foreground: a dull train of stout women carrying sun-umbrellas and of bored-looking men wearing gray felt high hats. With these came also young people aggressively bride-and-groomish—who openly snuggled together as they leaned over the iron railing just in front of him, and who obviously made soft speeches to each other in low tones.

This sort of thing, of course, was insupportable. He went on hurriedly by the Cliff Path—and most hurriedly past the point where the Biddle stairs led down to the Cave of the Winds: which cavern was so closely associated with a really thrilling experience of the year before that his only feeling toward it, under the new conditions, was that of extreme dislike. Down in that watery whirlwind of a place he practically had saved Constance's life. They had made the descent together, and at the bottom of the lowest ladder a sudden gust had dashed in upon them so heavy a mass of water that she staggered under it, slipped, lost hold with one hand, and so swung out bodily around the end of the balustrade toward the seething undertow beneath the inner edge of the fall. The one chance to save her was to step out into the whirling water; and Philip—not knowing how deep the water was, nor whether his step

was for life or for death—took that chance. Actually, the danger had been trifling. The water was shallow, and there was good foothold on the rock beneath. But the adventure had counted for so much at the time, had been, indeed, so directly instrumental in bringing matters between them to a climax, that it was only natural for him to regard it with strong disfavor from his more recently acquired May-blossom point of view. He did not in



"RECALLED AT EACH SOME TENDER MEMORY."

stance, standing together in the moonlight, had come to a definite misunderstanding, as he now regarded it, and had plighted their temporarily eternal troth. Constance had behaved very badly, he decided, and none the less badly even if what she had done was only what he was very glad to have her do; and having by this slightly illogical reasoning arrived at a comfortable sense of injury, he went onward to the next ordained stopping-

the least regret, of course, that he had preserved Miss Marden from becoming a cataractal victim—but oh! he thought, if only it had been his May-blossom's life that he then had saved!

Walking along the Cliff Path, and beset by these mixed reflections, he came to what should have been, under the terms of his vow, his next stopping-place: the bench, nestled into a cluster of arbor-vitæ, which commands the view of the Horse-Shoe Fall. But he did not stop there—for the excellent reason that the bench was occupied by a brace of actual lovers, and therefore was not available for the dubious accommodation of an ex-lover and a phantom love. As he passed on he wondered grimly if the feminine half of the brace in possession were named Constance, and if the masculine half were asking her to give him a sprig of arbor-vitæ because its meaning was constancy? He had known of an instance of that sort occurring on precisely that spot—and again his feeling that Constance had behaved very badly was comfortingly strong.

And then, by a perfectly natural process, his thoughts reverted tenderly to his May-blossom and to the meeting that was in store for him at the end of this horribly long day. He looked at his watch to find how much of his waiting time remained. Actually, so far, he had killed only an hour. At this rate, by sundown he would be gray!

It was with quite a hopeless feeling that he kept on toward the bridge leading across to the Three Sisters; and because of his hopelessness he was correspondingly grateful to the good fortune that sent him, close by the bridge, a really capital subject for a sketch and so enabled him agreeably to fill in another half hour. On one of the shaded benches on the little esplanade that opens here was seated an old gentleman, whose decorous black garments and black high hat girdled with crape were of the cut and fashion of an earlier day. His hair and eye-brows were quite white, and his clean-shaven face had that drawn and weary look that comes only in old faces when Sorrow has set its seal on Age. Coming close to him, Philip saw that he was asleep—and therefore the way to making the sketch was plain. At the moment, of course, the artist was all aflame with enthusiastic purpose to work

up this sketch into a stunning exhibition picture—with a rattling catalogue name, such as "The Last Leaf," or "Sunset"—that would be the best thing he had ever done; and, equally of course, the beginning of this enthusiastic purpose also was its end.

When, his sketch being finished, he crossed the bridge to the Three Sisters he found those little islands quite intolerable. They were saturated with Buffalo excursionists vigorously at lunch. Even that most exquisite bit in all the upper rapids—the outlook towards Spouting Rock—had for a foreground a row of coatless male Buffaloes seated upon a log, with their backs to the river, eating sandwiches with all the fervor of their earnest souls. Near them beneath the trees—scattered about upon the rocks in easy attitudes, and having the look of contented but ill-dressed dryads—were stout female Buffaloes who shared their feast.

Upon beholding this scene, Philip fled precipitately homeward to his hotel. As an artist the spectacle enraged him; but also, as a man, it reminded him that he wanted lunch himself.

VI.

Mrs. Langton and her daughter were due to arrive by a train getting in about four o'clock. Philip's first intention had been to meet them at the railway station; but more mature reflection had led him to decide that better results would come by waiting until they should be rested and refreshed after their journey and by then executing a slightly dramatic chance encounter on the veranda or the stairs. He was a prudent young man, and at this particular juncture he did not intend to lose any points by carelessness.

It was a part of his programme of prudence to avoid a genuine chance meeting by absenting himself from the hotel during the entire afternoon; and to this end he strolled down to the grove immediately after lunch with the intention of smoking there a refreshing cigar while enjoying the beauty of the American Fall. At that time of day the park was almost deserted. The only person near him was a thick-set man—wearing a suit of black clothes and a very shiny high hat, and having the look of defiant rusticity which

usually may be observed in a western congressman—who had seated himself on a bench, with his back to the cataract and, utterly ignoring that watery excrescence upon the face of nature, was reading the *Omaha Bee*. To do this Nebraska man justice, there was nothing aggressive about his method of pursuing happiness; but Mr. Harley—possessing an easily ruffled artistic temperament, and being exceptionally open just then to irritating influences—found it so insufferable that he got up presently in a rage and dashed across to the inclined railway and so down to the foot of the fall.

The point of view to which he was carried by his anger is one of the most impressive in the Niagara series. Looking upward, all the world seems to be solved there in the huge gush of pale foam and paler spray, with the underlying torrent of green-black water pouring forever downward with a forever thunderous roar. Unfortunately, being handicapped again by his artistic temperament, his chief interest in this really creditable display of the beauties of nature was in how it would paint.

This too technical standpoint continued to interfere with his pleasure during the walk that he took—having returned to the upper level—to the several view-points on the Canadian side. In considering the

general panorama from the bridge, and the views in detail of the Horse-Shoe Fall, the Whirlpool, and the Whirlpool Rapids, his enjoyment uniformly was lessened by his efforts to accommodate these several natural wonders to canvasses of appropriate shapes and sizes and to decide upon his plans of treatment and precise points of view. The Whirlpool Rapids, to be sure, did almost make him forget in genuine enthusiasm over nature how they ought or ought not to be treated by art; and he might have been entirely carried away into rhapsody but for the offensive photographer who wanted to photograph him seated upon a pile of rocks in relief against the tumultuous waters, and who assured him that such a photograph would be "a dandy thing to take to his friends."

But even with these several drawbacks the walk served its purpose: enabling him to kill the dull hours through which he had to wait until his new love came to him, and at the same time to discharge himself handsomely of his vow to revisit the spots sacred to the memory of the old love which so fortunately had withered away.

VII.

The chance encounter with the May-blossoming Miss Langton was an entire success. Philip managed it so that they met suddenly on the veranda; and he was glad to observe that after her start of surprise there came into her lovely eyes a

look of pleasure that had every appearance of being genuine.

Mrs. Langton, who was with her daughter when this meeting took place, was more than cordial—she was discreetly helpful. With adroit promptness she remembered that she had forgotten her fan and went to get it. Her absence gave them five minutes entirely to themselves; and one member of the company (that had been a crowd until Mrs. Langton made her obliging move) too long had sailed the



"A REALLY CAPITAL SUBJECT FOR A SKETCH."

latitudes of love to waste this precious time.

In answer to her natural question as to how he happened to be there just then, he dropped his voice to the register of embarrassed tenderness and said with precisely the right amount of hesitant confusion: "I knew that you would be here about this time, and—and I couldn't help coming." And then he continued—after a momentary pause, in which he observed with skilled interest the delicate flush of color rising to her face—speaking in less hesitant and more earnest tones: "It doesn't bother you, does it, my being here?" The pink in this pretty May-blossom perceptibly deepened in tone, and her voice scarcely was audible as she answered, "No!" and with her answer gave him a glance of her blue eyes so brief that no known subdivision of time is short enough to describe its shortness, yet of a quality which to one of his experience was so betraying that he knew that he was master of this game of hearts.

Mr. Harley was too astute a player to press his advantage unduly. Having thus secured information sufficient for his purposes, and entirely to his liking, he promptly relieved the strain of the situation by passing in the most natural way to a series of the most commonplace questions—about her mother's health, and where they had been, and where they were going—and so won her gratitude, as he counted upon doing, by covering her retreat from the rather trying position into which he had forced her so skilfully that she attributed her getting there wholly to her own imprudent self.

"How kind and how considerate he is!" she thought. And he was thinking: "Her naiveté is absolutely ravishing—Constance has not been able to blush like that for at least five years!" On the spur of the moment he decided to bring matters to a crisis that very night, and so continued: "Shall we walk to the Falls after dinner? It will be moonlight tonight, you know, and you ought to make sure of the view while the fine weather lasts—that is, of course, if you are not too tired." And again Mr. Harley's trained understanding was quite satisfied by the tone in which she answered: "I am not at all tired."

And then Mrs. Langton—having re-

membered that she had not forgotten her fan, but had left it behind her because she did not want it—joined them again. That she asked him to dine with them was a fresh act of circumspect maternal grace.

About Mrs. Langton there was, indeed, a serpentine dove-likeness which Mr. Harley fully recognized and heartily admired. She still was a young woman—under forty, certainly; but her life had not been passed in a convent, and she had acquired a more than fair working knowledge of worldly ways. It had pleased her, of course, that Philip so obviously admired her peach-bloomy daughter; for she sedulously had guarded the peach-bloom against the coming of a person of his eligible and appreciative sort. From the very beginning of their acquaintance, in fact, they had understood and had liked each other—each recognizing in the other that agreeable lack of extreme innocence which tends to the amelioration of social intercourse and which comes to persons of intelligence as the result of wholesome attrition with the world.

At dinner she was admirable: manifesting a beautiful unconsciousness of her daughter's embarrassment—which increased in a direct ratio with that young person's more and more clear instinctive understanding of what probably would be the outcome of the moonlight walk—yet skilfully assisting Philip to hide it by maintaining with him an easy flow of talk. Nor was her consideration shown only toward her daughter. It was at her suggestion that they drank their coffee, over which the ignorant May-blossom was disposed to linger, with a reasonable celerity—because, as she explained with a cordial thoughtfulness that entirely won his gratitude, she knew that Mr. Harley wanted his cigar; and the moment the coffee was finished she bade him begone to the enjoyment of this luxury upon the veranda—where they presently would join him when they had provided themselves with wraps to guard against a possible chill in the night air. Indeed, her deportment was such that as he lighted his cigar his mind was filled with agreeable thoughts of a future abounding in happiness. His wife would be precisely the May-blossom which—precisely because he himself was so well past the blossoming stage—alone would satisfy him;

while at her elbow, ready with shrewd counsel to guard her against the gaucheries to which immaculate immaturity is prone, would be this charming mother-in-law: who, on the way to the condition of entire maturity at which she obviously had arrived, had eaten enough of the fruit of the tree of knowledge to be engagingly maculate and very wise.

It was while in the midst of these pleasant reflections that Mr. Harley experienced a disconcerting shock. He had seated himself at the remote end of the front veranda, the end nearest to the river, whence he had a distant view of the main entrance to the hotel—in front of which entrance was a radiant space bright from the blaze of gas-jets within. Suddenly, across this field of light—coming from a carriage which had stopped before the door—there passed a woman whom he could have sworn was Constance Marden. He could not distinguish her face, but the general resemblance was perfect: her height, her figure, her walk. He

gave a gasp, as the dreadful thought occurred to him that it really might be she: and come to keep her end of the vow!

He sprang to his feet and walked rapidly toward the doorway into which this horrifying possibility had vanished. But half way down the veranda he met Mrs. Langton and her daughter coming to rejoin him, and his intended pursuit was balked. For fully ten minutes he was in a state of nervous tremor—until his common-sense returned to him in a sufficient quantity to make him realize the utter groundlessness of his fear. From the standpoint of rationality he perceived, of course, that to expect such a person as Constance Marden to keep such a vow was nothing less than exquisitely absurd.

VIII.

When the moonlight shone fairly above the tree-tops—precisely as it had shone when his treatment of the same theme, under different conditions, had reached the same point a year before—Philip very politely invited the ladies to walk with him to the Falls.

The beautiful confidence which this invitation proved that he reposed in the discretion of his possible mother-in-law was justified by the event. In the most matter-of-fact way Mrs. Langton protested that she already felt a chill in the air (which actually had the bland softness of a tropic night) and at her age (this was a charming touch) she did not dare to take any risks. But they, being young—she added with an exemplary unselfishness—must not on her account lose the rarely beautiful view. She was sure that Mr. Harley would take the best of care of Eleanor—and so they really must go off without her for half an hour while she retired to the parlor and made herself comfortable with her book. Neither Philip's polite request, nor her daughter's urgent entreaty (which last was entirely genuine, for by this time the May-blossom was all in a quiver with maidenly fears) sufficed to change her purpose—and Philip, fully recognizing the delicacy of the comedy, vowed in his heart that it was finer than anything he had ever seen upon the stage. Still keener—thrillingly keen, indeed—was his pleasure, as they walked together down the pathway beside the rapids, at



"A DANDY THING TO TAKE TO HIS FRIENDS."

the demonstrably innocent way in which Eleanor's arm trembled within his own. It was most piquant—and in what delightful contrast with the conduct of Constance under similar circumstances! Constance, as he remembered with great distinctness, had marched with him over this very same ground to this very same encounter with the cool steadiness of a grenadier.

Having had the benefit of a dress rehearsal on the same stage—to say nothing of rehearsals of various sorts elsewhere—Mr. Harley was in a position to play his part extremely well. He was not only letter perfect, but his business was accurately elegant. Quite naturally, in the middle of the bridge leading across to Goat Island he halted her (it was exactly where he and Constance had stopped—he recognized the crooked joint in the iron rail) and commended to her attention the view southward up the stream: where the full moon, hanging directly over the center of the river, flooded with a radiant glitter the on-rush of tumultuous waters which poured downward, as though from the very gates of heaven, from where the gleaming crest of the rapids, a half mile away, cut sharp against the blue-black sky.

Knowing that the entrancing beauty of this view certainly would exercise a wholesome influence upon his May-blossom in her then very solvent mood, Mr. Harley preserved for a considerable period a silence that was as judicious as it was eloquent. Not, indeed, until the strain due to his persistent muteness had become almost insupportable to her—a condition which he gauged accurately by the sudden involuntary tightening of her clasp upon his arm—did he speak: and then, all in a moment, with a delicately exact blending of tenderness and passion and entreaty, did he utter the appropriate words in a strictly appropriate tone—to which the May-blossom made answer (without at all realizing how carefully the situation had been played up to, and how impossible any other answer would be) by looking up at him in trustful tenderness with brimming yet assenting eyes.

And then, presently, they crossed the bridge to Goat Island and walked onward slowly beneath the friendly shadow of the trees.

IX.

They were settling slowly into a condition of calmer happiness when, half an hour later, they came to the bridge again on their way back to Mrs. Langton and the hotel. In the shadow of the buildings on Bath Island they momentarily halted—as they saw another pair of lovers standing on the bridge exactly where they had stood a little time before; where also, though Philip had neglected to mention this interesting fact to his May-blossom, had been effected a year earlier yet another interchange of hearts.

The man's face, full in the moonlight, was turned toward them—and Philip instantly recognized it as pertaining to that ass of a Teddy Rawlings. The woman's face, in shadow and almost completely turned away from them, he could not distinguish; but that her figure bore a strong resemblance to that of his late Constance he saw at the first glance. Again was he shocked by the possibility of his ex-love's presence; but with the shock there came on this occasion a keen—though possibly a not wholly logical—pang of jealousy. Had she, then, really come to keep their tryst—and was this the way that she was keeping it? And why, most especially why, was she keeping it (or, strictly speaking, unkeeping it) with that creature Teddy: who at the best of times was a beast, and who under these circumstances of her too-obvious favor was all the beasts in the Zoo rolled into one?

Mr. Harley's questions were not asked aloud. To have addressed them to his May-blossom—even supposing that she could have answered them—would have been injudicious; and to have addressed them directly to the persons whom they concerned would have been not only injudicious but rude. Nor is it likely, in the latter event, that they would have been answered: for at the very moment that they were formulated in Mr. Harley's mind the duet on the bridge came to a crescendo climax in which its meaning (though this had not been very doubtful) and Miss Marden's identity simultaneously were made plain.

With the same sudden and delectably acquiescent movement of the head which Philip remembered with great distinctness, Constance—a little shifting her po-

sition—turned toward Teddy her beautiful face, so that the moonlight shone full upon it and revealed precisely the same radiant look that he also remembered so well. Then there was the same quick, impulsive gesture with the hands; the same momentary drooping of the lovely blonde head (Constance, of course, understood the value of moonlight on fair hair too well not to push back her hood on these occasions); the same slow swaying forward; and then, in exquisite finale, the

same delicious yielding to the same kiss—with variations.

"Isn't it beautiful, Philip dear?" the May-blossom whispered tenderly—and in a moment added: "But I am sure, darling, that they cannot possibly be as happy as we are!"

And Philip, speaking with an assured confidence that was bedded in demonstrated certainty, responded promptly: "And so am I!"



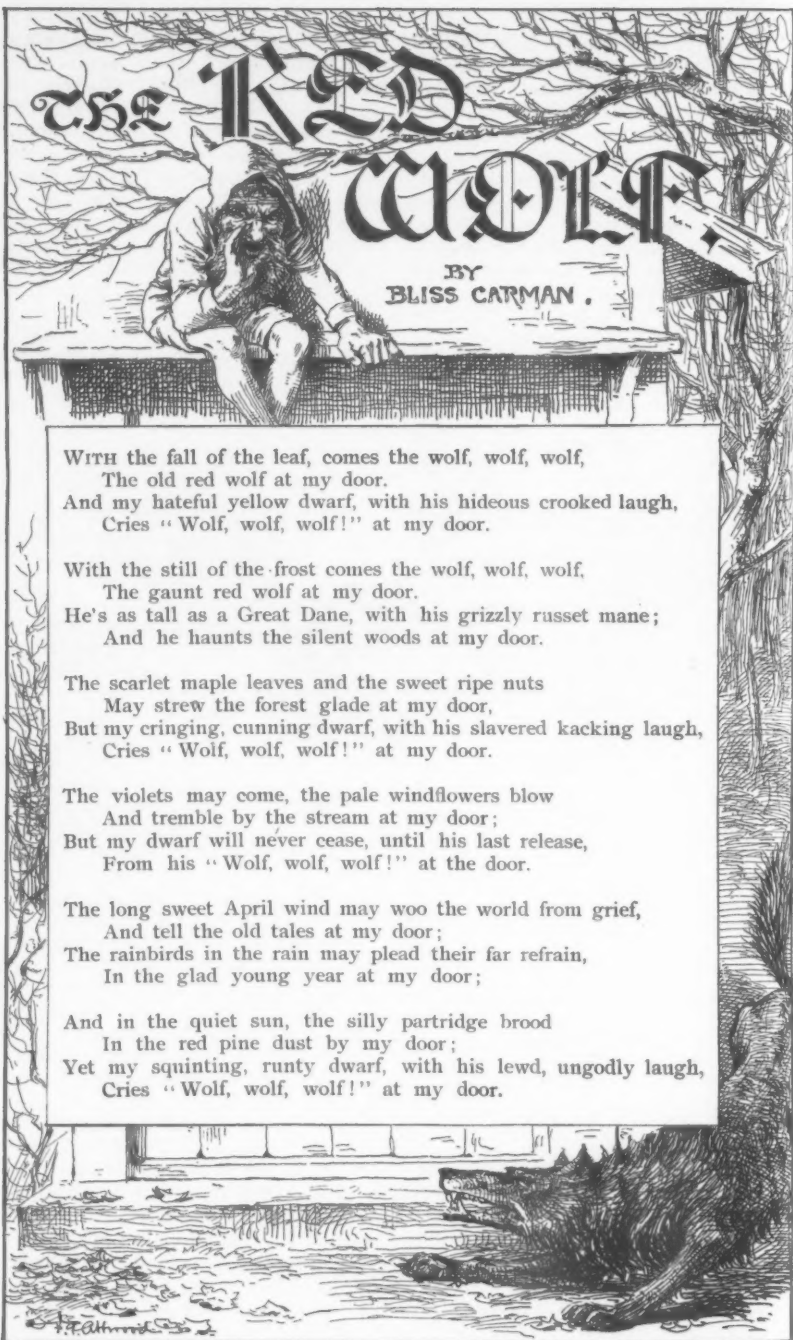
THE MAN FROM NEBRASKA.

WHEN LOVE COMES.

BY JOHN VANCE CHENEY.

How shall I know him,
My love, when him I see?
By the sunshine over me,
And all around my way:
I shall know him
As the daisy knows the day.

How shall he know me
When he sees me,—my love?
By the eyes that look above,
The open heart to say,—
"Love, I own you,
As the daisy owns the day."



THE RED WOLF

BY
BLISS CARMAN.

WITH the fall of the leaf, comes the wolf, wolf, wolf,
The old red wolf at my door.
And my hateful yellow dwarf, with his hideous crooked laugh,
Cries "Wolf, wolf, wolf!" at my door.

With the still of the frost comes the wolf, wolf, wolf,
The gaunt red wolf at my door.
He's as tall as a Great Dane, with his grizzly russet mane;
And he haunts the silent woods at my door.

The scarlet maple leaves and the sweet ripe nuts
May strew the forest glade at my door,
But my cringing, cunning dwarf, with his slavered kacking laugh,
Cries "Wolf, wolf, wolf!" at my door.

The violets may come, the pale windflowers blow
And tremble by the stream at my door;
But my dwarf will never cease, until his last release,
From his "Wolf, wolf, wolf!" at the door.

The long sweet April wind may woo the world from grief,
And tell the old tales at my door;
The rainbirds in the rain may plead their far refrain,
In the glad young year at my door;

And in the quiet sun, the silly partridge brood
In the red pine dust by my door;
Yet my squinting, runty dwarf, with his lewd, ungodly laugh,
Cries "Wolf, wolf, wolf!" at my door.

I'm his master, (and his slave, with his "Wolf, wolf, wolf!")
As he squats in the sun at my door.
There morn and noon and night, with his cuddled, low delight,
He watches for the wolf at my door.

The wind may parch his hide, or freeze him to the bone,
While the wolf walks far from the door;
Still year on year he sits, with his five unholy wits,
And watches for the wolf at the door.

But the fall of the leaf and the starting of the bud,
Are the seasons he loves by the door;
Then his blood begins to rouse, this Caliban I house,
And it's "Wolf, wolf, wolf!" at the door.

In the dread lone of the night I can hear him snuff the sill;
Then it's "Wolf, wolf, wolf!" at the door:
His damned persistent bark, like a husky's in the dark,
His "Wolf, wolf, wolf!" at the door.

I have tried to rid the house of the misbegotten spawn;
But he skulks like a shadow at my door,
With the same uncanny glee as when he came to me
With his first cry of wolf at my door.

I curse him, and he leers; I kick him, and he whines;
But he never leaves the stone at my door.
Peep of day or set of sun, his croaking's never done
Of the Red Wolf of Despair at my door.





But when the night is old, and the stars begin to fade,
And silence walks the path by my door,
Then is his dearest hour, his most unbridled power,
And low comes his "Wolf!" at the door.

I turn me in my sleep between the night and day,
While dreams throng the yard at my door,
In my strong soul aware of a grewsome terror there
Soon to knock with command at my door.


Is it the hollow voice of the census-taker Time
In his old idle round from door to door?
Or only the north wind, when all the leaves are thinned,
Come at last with his moan to my door?

I cannot guess nor tell; only it comes and comes,
As from a vaster world beyond my door,
From centuries of eld, the death of freedom knelled,
A host of mortal fears at my door.

Then I wake; and joy and youth and fame and love and bliss,
And all the good that ever passed my door,
Grow dim, and faint and fade, with the whole world unmade,
To perish as the summer at my door.

The crouching heart within me quails like a shuddering thing,
As I turn on my pillow to the door;
Then in the chill white dawn, when life is half withdrawn,
Comes the dream-curdling "Wolf!" at my door.

W. H. Hudson



Only my yellow dwarf; (my servitor and lord!)
I hear him lift the latch of my door;
I see his wobbling chin and his unrepentant grin,
As he lets his oafship in at the door.

He is low and humped and foul, and shambles like an ape;
And stealthily he barricades the door.
Then lays his goblin head against my lonely bed,
With a "Wolf, wolf, wolf," at the door!

I loathe him, but I feed him; I'll tell you how it was
(Hear him now with his "Wolf!" at the door!)
That I ever took him in; he is—he is my kin,
And kin to the wolf at the door!

I loathe him, yet he lives; as God lets Satan live,
I suffer him to slumber at my door,
Till that long-looked for time, that splendid sudden prime,
When Spring shall go in scarlet by my door.

That day I will arise, put my heel upon his throat,
And squirt his yellow blood upon the door;
Then watch him dying there, like a spider in his lair,
With a "Wolf, wolf, wolf!" at my door.

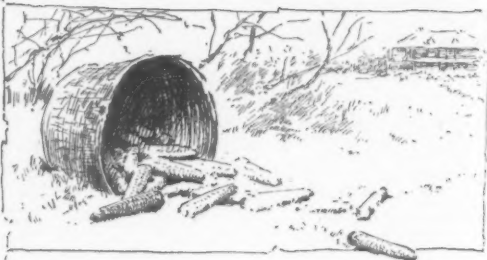
The great white morning sun shall walk the earth again,
And the children return to my door.
I shall hear their merry laugh, and forget my buried dwarf,
As a tale that is told at the door.

Far from the quiet woods the gaunt red wolf shall flee,
As a cur that is stoned from the door;
And God's great peace come back along the lonely track,
To fill the golden year at my door.





AMONG THE FALLOWS.



SILK AND TASSEL.

BY MARTHA MCCULLOCH WILLIAMS.

NOVEMBER daybreak. A low sky, gray, windy, eaten to a jagged edge at the east as by the touch of fire still underworld. Frost has nipped hard. Grassland is sere and stark. Weedy stubble wears shrouding of black. The fields are still—so still. Even the birds drowse yet upon their perches, with heads beneath the wing, dreaming it may be of summers past. But plowmen are wide awake. Daylight is a laggard now—no beam of it must be wasted. Hear them trooping out from the farm-steads. What beat of hoof, what clank of chain, what heartsome calls and chirrupings to the good beasts by whose help they live and thrive.

Moses the plowman loves his work, his team. Especially Dick, the lead horse—a big, intelligent bay, with the white star in the forehead, the one white hind hoof, that index equine perfection. Depend on it, his is not wholly a cart-horse ancestry. Though he gets thence the broad breast, the massy shoulder, the quarter that is power incarnate, racing blood speaks in the sharp, thin crest, the quick, intelligent ear, the fine flat bone and clean line of limb. His back is short, with good length below, his coat is smooth and lively; there is even a half ripple in his black, streaming tail. Though he stands an inch lower than his next neighbor, Liz, the buckskin mare, he is the bet-

ter horse at all points—for strength, or speed or stay.

Liz is, in truth, a melancholy creature. Even at grass on the summer Sundays her ears have a complaining droop, or else are viciously batted if a comrade grazes past. Poor beast! She is hardly blame-worthy. Who could be cheerful—even good-tempered, if born to the burden of a clay-bank coat, big, splay feet, coarse muzzle and raw-boned, long-waisted frame? All the more if fate in mockery set the owner of them in company with creatures of her own kind, marvellously better favored. Such, for example, as Black Phyllis, the off leader. Hersiresported silk, her dam was the master's own saddle mare, more than half thoroughbred. Phyllis herself has the grace of patrician, the strength of plebeian blood. Her coat is like satin, her muzzle tapers enough to go into a quart pot. Pride is not prouder than the arch of her crest, as prancing, curvetting, with little shrill neighs, she comes afield. Yet once in the collar, Dick pulls no greater draught, Liz is not steadier, kinder, at the work. Doubtless Phyllis feels the obligation of nobility—besides she is here but for a time. Save in the stress of fallowing she draws the carriage or bears about a brave rider through green country ways.

Maybe, too, she feels that the end crowns the work. The end of this work is corn, the stateliest grain that grows. The early planting which insures against drought is possible only through fall plowing.

Then if it be wet, holding, miry even, it is no matter—frost and snow will change all that. When their season is past the plow runs only in dry, pleasant weather upon pain of leaving the land behind it cloddy and lifeless until another winter.

So even before frost-fall, breaking began. These fifty undulant acres stood breast high in weeds. The field is a long square. Down the middle of it, stopping some way from either end, Moses ran his first furrow, swung his team and threw another to it. You hardly saw the brown gash in the breadth of furzy growth, even after he had gone a dozen times back and forth, throwing furrow to furrow, then he went round and round them, plowing out instead of in, the lead horse walking in a furrow, the two others footing it on the firm ground. His plow is a left-hand one—infinity the best for fallowing. Forward, forward the good beasts go in long, round, ever growing wide and wider. Now and again stalwart weeds choke the plow or the mire of a water-vein clogs the share. With a quick, powerful turn of arm and wrist, Moses plucks it from the furrow, tramps off the obstruction with a booted heel and sets the point again in earth without checking the team. Most times, though, he tramps sturdily behind, one hand upon the plow-handle, the other wrapped about with the line that runs to Dick's head. Plowing is but play to him. If he walks a little bent it is from habit, not weariness. He is too wise not to make haste slowly. Liz's ungainly muzzie is full all the time of weed-tips that she has greedily snatched as they went passed.

Yet, save in the shortest days, Moses and Dick will give an account of three acres turned. Look well at them as a vagrant low sunray glints for a breath's space upon chain and share, then is swallowed in the murk crowding down from the north. Spite of the red sunset, the rising is redder,—so angrily red, indeed, as surely to foretell falling weather. Dawn had no breath of air. Now the wind sits at northwest, a huddle of spiteful sharp-lined clouds at its breast, driving rapidly under the gray fleece, that night has hung in the heavens. At the sight Moses sighs aloud. A patient, merry fellow, often singing at his work, he knows wind and cloud by heart—already feels poten-

tially upon his face and hands the sting of snow-spits, the numbing of cold rain. It is hard work this morning. The crusted earth rolls away from the share in thick, yard-long clods. Though they have made the land's round but twice there is a stain of moisture on the plow-beasts' heaving flanks, a fleck of white foam at Phyllis's bit. She is impatient of this steady strain—afire to dash headlong through the morning's electric chill. It has crept into her marrow as hard cold never could do. See how she dashes against the collar. Her mates feel the impulse—yield to it—the big plow fairly leaps, as swinging to the trot they round the far turn.

Moses bestirs himself. "Whoa dar! Dick—Richard! Miss 'Lizabeth Buckskin, whut de matter wid you? Whoa dar, pretty gal! I know you wants ter run, but plowin' ain't racin'," he shouts, pulling the line so taut, Dick's chin well-nigh touches the collar. For a dozen rounds the creatures pant and strain for their heads. At last, worn to the work, they fall to proper steadiness. Moses begins to sing—

"Birdeye lady, sooner in de mornin',
Birdeye lady, sooner in de mornin',
Come to de fiel', an' tell dis nigger howdy.
He's plowin' all day long fer ter git
[de early corn in."

The song is a survival—a relic from the old, care-free days, when Moses and his sort sang at the plow, in the harvest, about the corn-pile. Over and over he chants the rude lilt. What memories must lurk in it for the everlasting land! A full hundred years have bloomed and faded since first the notes of it rang through a virgin world. The field was barely begun then—a tiny clearing, with a cabin at its edge. All about it, belting woodlands spread miles of untouched green. The pioneer who had brought his household thus deep into the wilderness had much ado, at first, to find them bread.

Truly, corn was the staff of life in those days. Without it, the march of civilization must have been laggard, indeed. Scant breadths of rich new soil gave bread for the year. Besides, the grain had but to be husked and pounded; there was no tediousness of flail and winnowing

betwixt the full ear and bread. What wonder that the darkies, with sly humor, nicknamed the familiar ash-cake "John constant," the rare wheaten loaf "Billy seldom." What wonder, either, that their masters and mistresses spoke of "English dough," when they meant the product of flour; it is but the fit and proper correlative of "Indian corn."

For a first corn-crop the timber was partly deadened, partly felled—if possible, in May, and never later than July. By August it was as dry as tinder, and fire swept through it, burning up all but the larger trunks. They lay too thick, too criss-crossed, to think of plowing; but, all among them, corn, dropped the next February, sprang green and tall, grew to lusty shoot and ear, with but a scrape or two of the hoe, to give it advantage of weeds.

While it grew to ripeness—it was hard in August—strong arms were busy cutting, piling the charred trunks, carrying death and ruin further into the woodland wall. Next year, perhaps, saw corn-rows run straight through the tall dead timber. How the poor trees must have hated the green, springing upstart, who compassed in a night what to them was the growth of the year! Always there is enmity betwixt them—the forest primeval and these invading lancers, who stand shoulder to shoulder, crowd rank upon rank, till they cover the face of the earth. You can see that at the wood's edge, or even where one tree has been left alive in the field. The grain springs up pertly, grows to the tassel as bravely as its fellows; it maybe makes even a show of silk. Then the tree rustles scorn through all its leaves, sets its roots sucking—sucking the dew, the rain, the warm moisture of the land. A giant indeed, like a giant he uses his strength; the corn shrinks, shrivels, stands yellow and fruitless, the sport of each light wind.

Except, indeed, the tree be a walnut, corn grows scatheless sometimes at its very root. The plant has, throughout, subtle sympathies—more subtle antipathies. A peach-tree growing in the midst of it bears fairer, finer-flavored fruit than any the orchard can boast. Apples so situate, if they do not blast in the gloom, grow gnarled and spotty—scarce, indeed, worth the gathering. Beans, pea-

vines, pumpkins, run riot in its seat. Oats and rye spring luxuriantly after it; but cornland wheat, though it may yield heavily, is always of poor quality—a shrivelled, chaffy grain. This, too, though science affirms that corn feeds largely from the air, takes nothing like so much from the soil as does tobacco—a crop after which wheat grows better than even upon clover fallow.

Moses is silent now. He has other use for his breath. His eyes are rheumy, his feet chilled through, his fingers so numb he can scarce manage strap or buckle. Each low scudding cloud has a sharp fringe of rain, or spits at him a stinging powder of snow. The horses are wild to be out of it. More than once, Phyllis has stood upon her hind feet, plunging for her head. Along the outstretch, urge as he may, with voice and line, they lag and look wistfully over the shoulder; coming down, with their heads to the stable, they break almost into a run—are hardly sent around the turn. When the farm-bell rings the noon-hour, they stop short in their tracks, though they are midway the outstretch, and know well that Moses never unharnesses save at the nearest point home. He looks at them pitifully, and says, with a little cluck: "Not yit, po' fellers! Us bofe ought ter be out er dis; but den, us bofe loves ter eat, an' if we don' make it, how us gwine ter git it?"

Even Dick has no answer for that. This day—how many days—the plow runs until dark, though blood is nipped and all the ways be foul. Snug in her warm stable, Liz, the buckskin, doubtless gives thanks for the night wherein no man can work.

IN THE CORN-FIELD.

High May, hot and splendid. Lush new leafage droops in noonday's dazzling sun. Elder flowers and dog-roses be-star the wayside. June is imminent, corn ready for laying by. Mightily grown, too, from the white kernel dropped in March—the peeping shoot, wherewith April drew green lines athwart the fields. Now it stands shoulder—headhigh, big lusty stalks, locking blades across the row. Their rustle in the south wind is as the noise of many waters—a curious, insistent susurrus running through all the day. Did the summer visibly, audibly

trail her robe along the hills the sound must be like this—the folding, lapping, gliding of the richest, sheeniest stuff.

Six plowmen are afield, Moses at their head, with Dick for his plow-beast. How cheerily they go, up, down the long rows, light earth creaming away from the bright plowshare to lie heaped at the corn's root. What wonder it flourishes upon land of such heart, such tilth! Five times since the planting has the earth been stirred. Weed or grass has sprung up but to die. Save for the appointed growth the soil is as bare as a floor. The plowmen tread it barefoot. Indeed, to do otherwise were a waste of opportunity. What so delicious as the feel of it, yielding, cool, electrically fresh. The pea-sower keeps well before the plows. A little while, and all the earth will be a mat of leafy vines, beset throughout their green darkness with winged white or pinky purple blossom.

Long ere that comes to pass, corn will be tall, indeed. Already in the swales, it is over a man's head, with never a hint of tassel. Well may the plows be glad

to be quit of it. So high, so thick it stands, no breath of air comes through, and still the climbing sun pours through the rows, a flood of golden heat. Man nor beast can endure it past eleven o'clock. They went into it at sunrise, to be drenched with May dew. They come out, dripping wet, though the dew is three hours vanished. Children of the tropics that they are, Moses and his fellows, scent danger in the blinding, blistering rays. See! Each of them has cushioned his head-piece thickly with fresh leaves, put a shelter of branchy boughs in his horse's head-stall. A month later they will not half so fear the sun. It is the first great heat, so quick-come, so breathless, that the whole world stands agasp.

"Growing weather," say the farmers. Ripening, too. Wheat, last week new-come in milk, takes on more than a hint of yellow. More than ever the plow must speed, that there may be time for the harvest. With the corn it is now or never. Another week, another rain, the field will be a jungle.

And rain is not far away. True, there is no hint of cloud in blue overhead—no rimming haze even, no muttering thunder from under the horizon. But the weather-wise feel it in the thick, lifeless air, potentially inert. They know its tricks, its treachery—have seen the cloud no bigger than a man's hand, gather low down the sky, mount swelling to the zenith, and wrap the heavens with its pall, cover the face of earth with darkness or fearfully illumine it with the lightning's spectral glare. Even as you look such an one mounts, darkens—pelts the warm earth with a sheeted fall that in five minutes sends muddy runnels furiously racing down every fresh furrow,—indeed, turns all to a quagmire, the plowland's breadth. Now Dick and Liz and the rest shall have happy holiday. Moses rejoices in it, even more than themselves. Before the rain is half over he has led them out of stall to the dripping freedom of the wide hill pasture.

How green and still and sweet smelling it lies! No wonder the beasts run ecstatically about,



Reynolds

"MOSES."

neighing, prancing, nipping one at the other, snatching lush tender mouthfuls between rolls on the soft, wet turf. Dick has been down and up, three times in as many minutes, notwithstanding he was wise enough before each wallow, to put his nose to the earth and go completely around, on the spot where he meant to lie. Had his sensitive muzzle touched stock or stone he would have chosen some other spot, where his fine new spring coat could come to no harm.

He need not be so avid of pleasure—he has plowed his last corn-row until another year. Look over the pasture fence—then say if there is not magic in the rain? The corn-field is a sea of tossing blades, of wind-tangled stalks, tossed and writhen to a very jungle. Almost you see them grow. The morning will find them a full foot higher than when the sun went down. A week at the latest must bring silk and tassel. Where growth is rankest, the powdery golden tips will nod twenty feet in air, the gorgeous shoots in their bravery of silk be out of a tall man's reach.

What shining various filament the corn silk is! Here are pink and white and yellow and scarlet crowding the same stalk. How curiously vital the texture of it. Trail it across the back of your bare hand and note the fine faint prickings that follow—fine enough, faint enough, for the sting of fairy darts. Other grains content them with sad-colored, inconspicuous flowers. Not so this lordly savage of harvest. Rainbow color is not too gay to let the world know he has come to fruit.

Up above, each wind that blows shakes out dusty gold, bears it anear, afar, a very breath of life. Without it, vain were goodly stalk and lusty leaf and silken frippery of springing shoot. The stalk that stands solitary may look the sum and pattern of fruitful growth, but unless it has the neighborhood of a corn-field, will yield scarce a dozen grains to the ear. That is why corn of pure strain is so hardly come at. Choose your seed never so carefully alike, the crop from it will show traces of whatever is planted within a mile of it. This, too, is what makes it the grain of whim and vagary. Atavism is strong in it. Else how should the gorgeous red ears, the purple, the strawberry, each and all, spring from de-

corous white flint seed. How else, either, should the grain form sometimes in the tassel itself without sign of husk or cob. Truly environment means much to it. So much that the corn merchant can tell you at a glance whence came this grain or that, and how it grew. Sandy soil gives grain flinty but of light weight, alluvion yields enormously of big, coarse, spongy ears. From limestone clays in good heart comes corn of the very best—sound, sightly, heavy and flint-hard. Corn has a knack, too, of becoming weatherwise. In Texas or Louisiana there are six to seven months betwixt planting and ripeness, yet in a few generations the same seed will accommodate itself to the brief Canadian or Minnesota summer. Conversely, seed from high latitudes matures as quickly as low ones, yet, in the space of five years will learn to take the whole year's sunshine for growth, as does grain to the manner born.

Come again to the field. Peas are in blossom, corn just past roasting-ear stage. The green aisles are full of music—little ruffling airs set the long blades lightly atoss. Bees drone through all day long, the grasshopper makes whirring flights whenever you stir a foot. Over and beyond his noise comes the locusts insistent shrilling. "Dry-flies" country folks call them—holding that their crying is the sure forerunner of drought. Yet from the wood's depth the rain-crow flings his call athwart the locust-chorus. A weird, plaintive note it is—neither low nor loud, sometimes almost maddening in its hour-long iteration.

Moses would tell you the bird was "calling rain," and that the butterflies, so thick here where the runnel drains through, were industriously fanning up with their gay wings the cloud that is to furnish it. Certainly there is a hover of them—white, yellow, many spotted—all over the moist earth. And here amid the corn, hanging head down, in the shadow-fastness of thick blades, are all manner of night-flying creatures—enough, indeed, to make a collector wild with joy. See, here is a death's head moth; there is a big, black-gray one with gold spots down either side of the big body, still another with brown velvet wings veined and dusted with dull red; two, three, silvery white fellows, and beyond them a gorgeous peacock moth.



"THE PIONEER HAD MUCH ADO AT FIRST TO FIND THEM BREAD."

Indeed, pretty well all that creeps, or flies, or sings, at some time makes acquaintance with the corn-field. All singing birds fly over and through it, partridge and dove make it their dear asylum. Rabbits run riot in it, especially after the young peas form, wild turkeys hide in it, dust in the light earth and feed fat on the drooping stalks. And all along the wood's edge, the creek's bank, squirrels and coons leave a mark none may mistake. Sometimes for a dozen rows in, the ears are stripped bare of grain. The worst thief of all, though, is the muskrat, who cuts down the tender stalk just as it is tasseling, and makes off with it to his underwater dwelling. So greedy is he that, if undisturbed, he will cover with it all the face of the pool that serves to mask his abiding place.

Doubtless, they are toothsome, those young stalks—almost as sweet as sugarcane. Certainly, the young ears are. Though all the world feasted on them throughout their season, see what store remains to harden and wax great and hang heavy in all the field. The sun has done his part, the wind, the dew, also the early and the latter rains. Rich and gold-

en unto harvest shall stand all this fair breadth. Already the long, shapely ears begin to droop earthward, the russet to make head against the green. The corn, the summer are grown to ripeness. One with the other they will laughing rejoice, till upon both shall be set the frost's white seal of perfectness that men misname, death.

AT THE PILE.

November dusk. Overhead the stars show as drops of lurid light, outside the round of the misty vault. The wind, sitting at west, blows faint, but keen, full-

freighted with autumn scents. Tang of the fields is in it, winebreath of the orchards, all the hundred fine fragrances of new-fallen leaves. But here, at the cornpile, nobody notes or marks them. On every hand, the crusting earth rings sharply with tread of sturdy feet. In an hour it will be moonrise. Already there is tremulous luminance along the purple edge of the east. Till the moon comes, round and red, the ingatherers will make shift by this smoky glimmer of lanterns, hung sparsely about to shrub or stake.

What merry multitude their light reveals! Fifty—a hundred—good fellows all, men in the prime of mighty muscle, sturdy graybeards, piping plowboys; for the most part, black as night, with a bare sprinkle of white faces—a dozen, at the most. How they laugh and jest—run, leap, wrestle, play tricks of wanton strength, in this the gathering hour. Moses, this year the plantation's foreman, as master of ceremonies, gives cordial greeting to all. A little way off, his employer stands, smiling and shaking hands with the old men, calling cheerily to the younger ones, with half of whom he has

run rabbits, fished, and gone in swimming, all through his boyish days.

Possibly, that is what lies back of the corn-shucking, though the land-owner is a born conservative, foolishly fond, his wise neighbors say, of old friends, old ways. Once, corn-shuckings were a commonplace of the harvest season—the necessary complement of corn-gathering. This one is in the nature of an event. The harvest has been more than plentiful. Both cribs are full of big, sound ears in the shuck; yet here is a pile that ordinarily would stand for the year's whole yield. A solid heap, higher than your head, flattish at top, and many paces round, it can never hold less than 200 barrels—1000 bushels, that is—of shelled grain. The shape is a longish oval, and even the lantern-light shows rails so laid across it as to divide it exactly in two. It runs east and west, so all may have the moon's light when it comes. Moses has builded strictly by the orders of his father, the plantation patriarch, who got a liberal education in such matters before the war.

As the moon's edge peeps above the rimming trees, there is a shout from all throats: "Cap'ns, Marse John, cap'ns! P'int de cap'ns, and le'ss see shucks fly!"

Marse John shakes his head, saying: "Daddy Jim must do that; he knows more about everything than any of us youngsters." Daddy Jim smiles broadly. He alone of the good company wears Sunday clothes. If his shirt is coarse, it is as white as snow. It lies open at the throat, revealing the massy muscle of his hairy trunk. Below the shirt comes the grand, flowered satin waistcoat Marse John's father wore upon his wedding-day. It looks a little out of place above brown jeans trousers, but is kept in good heart by the pigeon-tailed blue broadcloth coat, resplendent in brass buttons. Clearly, Daddy Jim is not of tonight's workers. A glance shows the reason—hands so drawn and knotted with rheumatism as to make much ado of holding the staff whereon he leans. Yet, while his son, or his master's son, has a crust, a roof, Daddy Jim is secure from want.

Now he smiles broadly, looks about him, and says, in authoritative bass: "Willyum Dennis's Handy is 'bout de king-pin 'mongst de shuckers; but I bleeves George Meechum kin gib 'im er

mighty fa'ar wrassle fer hit. So, Marse John, I takes dem two—wid yo' commission, suh. Choose out yer mans, boys—dere's chance yere ternight fer er whole passel er fun."

"Who gwine walk de pile?" demands a piping voice. Daddy Jim puts on a reflective air, and says: "Dat sorter stumps me! Orter be Pete Meechum, he know sech er heap er songs; but I do 'ant ter spa'ar 'im f'um de shuckin'; he's er caution dar, I tell ye—wuf 'bout two common men."

"Yes—an' I chooses him fer one on my side," shouts Captain Handy Dennis. Pete giggles shamefacedly, saying: "Dunno which is de wussdest—shuckin' er singin'."

His brother, Captain George, sniffs disdainfully. "Des you git down dar in de front an' I'll show you—dat I will—sut'n as you 's knee-high to er grasshopper." As he speaks, a tall fellow lurches through the dusk, to be met with the cry, from all sides: "Ned! Ned! Dar comes Ned Rives! Git him on de pile, an' we'll skeer de ole scritch-owels clur out dey hollers."

"I lay ye don't," says Daddy Jim. "Owel kin see in de dark. He not afear'd er no co'n-field niggers, not eben ef dee wus all ha'nts. Now, come on, ye'all, an' git yer dram. Dat's hit, Marse John—gi' 'm des two fingers ter start on. Cap'n's fus—den Ned. Now, black mans, lemme see ye hustle and wrassle—go th'ough dis yere co'n-pile like de ole he-rat when de dawg git arter 'im."

At the word, black men and white men make a ring about the pile, sitting amiably cheek by jowl. The whites are all young fellows, in for a frolic, and no whit better dressed than their dark compeers. Marse John's young son is close at Moses' elbow. They fight under Captain George, whose force rings one-half the pile. Captain Handy and Pete will give account of the other end. Handy's father, William, mounts guard over the demijohn; only by his good pleasure may any man taste a drop of its contents, until the shucking is ended. Daddy Jim, though, will see to it that every man has water.

Nearly everybody has a shucking-pin—a peg of hard wood, bound to his right palm with stout leathern thongs. Before Ned can climb to his place, they are furi-

ously at the corn—snatching, tearing, rending—sending wreaths of shuck to right, to left, behind; rain of stripped ears overhead, to their allotted space. The rising moon has brought a keener, colder wind. Nobody heeds it, feels it—not even Daddy Jim. With a few old cronies, like himself past work, he stands as eager as the youngest there, for the triumph of his side. How his old heart beats, his old eyes shine, his stiff fingers thrill, as he watches the swift, tireless play of the white hand and the black! Ear for ear, Moses and little John work like machines rather than creatures of flesh and blood. Already there is a vacant round before them; the next touch fills it with an avalanche of higher ears. Ned has begun to walk the pile. Hark to his singing! Corn-songs are like no other melodies under the sun. Oftener than not, they wholly lack rhyme and reason; yet, in rhythm and cadence, a master of harmony might take them to heart. Ned's song is of the simplest—a monochord almost. Walking slowly back and forth the pile, he chants the stave that all about answer in full-throated chorus. The voices are mellow—a few mildly sweet. In all, there is an undernote—a wailing minor that might be the echo of their fathers' exiled plaint. To a trained ear, it is the hall-mark of African descent—as unmistakable as the blue-white eyeball, or the tell-tale darkness under the nail.

Loud, louder swells the singing. Five miles, east and west, the chorus goes throbbing through the still night. Frost is falling. Already it rims silver-white the dead leaves by the path, glistens coldly on the rail-fence, and shows gray upon the grass. And, through the silence of it, you hear:

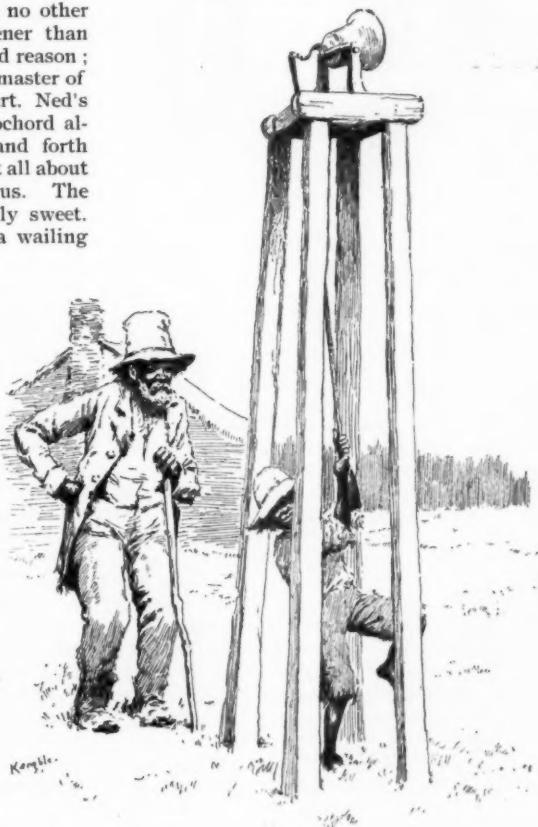
Oh, Miss Maria,
(Oh! Ho! Ho!)
I want to go to 'Ria;
(Ring, John! Ho!)
Maria was a lady,
(So! So! So!)
Maria was a beauty—
(Ho, John! Ho!)
Maria died an' lef' me.
(Oh, ring, John! Ho!)

Far down the path a different strain breaks through—belated guests it must be, singing by way of greeting. At the sound, Ned stops short, flings his arms above his head, and breaks into this chant—all the workers echoing:

Dram! Dram! Little drap er dram, sir!
(Chorus) Dram! Dram! Fetch erlong de dram.
Dram! Dram! Shuckin' mighty thirsty.
Dram! Dram! Nigger want er dram.

William Dennis shakes his head, but, at a sign from Daddy Jim, relents and passes the bottle from lip to lip. Ned begins:

Cyarve dat 'possum! Cyarve dat 'possum!
(Chorus)— (Cyarve 'im ter de heart!)
Cyarve an' cook dat 'possum, children.
(Cyarve 'im ter de heart!)



RINGING THE NOON-HOUR.



"DADDY JIM."

Jay-bird settin' on er swingin' limb;
 (Cyarve 'im ter de heart!)
 I up wid er rock an' flinged at him—
 (Cyarve 'im ter de heart!)
 Cyarve an' cook dat 'possum, children!
 (Cyarve 'im ter de heart!)
 One-legged hopper-grass stockin' of a plow,
 (Cyarve 'im ter de heart!)
 One-eyed red-ant showin' of 'im how—
 (Cyarve 'im ter de heart!)

Daddy Jim breaks in indignant: "Dat ain't no corn-song wuth shucks, Ned. Say, don't you know 'Rock me July,' an' 'Cindy Brown,' an' 'Ham-Meat Gravy,' an' 'Up an' down de Banjo?' Sing some er dem 'less 'n ye want dis yere crowd ter see corn an' daybreak tergedder."

For answer, Ned strikes up "Sally gal, yaller gal." The rest give a vigorous chorusing but lose no time. Each captain is burrowing as for life, to the heart of the pile. If he can but snatch one unhusked ear from the other side of the railing he will be accounted victor—the corn-piles'

king. Hourly the bottle goes round—the singing grows louder. When first cock crow sounds the great heap has melted as by magic to a space of husky litter, with a double line of squat figures across its middle, whose arms fly like windmills, tossing back and back the hard, white, glistening corn. Ned has perforce quit the pile to stand chanting at one side. The two captains front each other in rivalry as tense as ever stirred victors in the Olympian games. Each must have shucked to the rail before he can lawfully seize corn from beyond it. Heavens! how they pant and strain, with lowered heads, faces beaded all over with sweat. So even, so well matched are they, it looks now as though one must win, now the other. Moses is still at Cap'n George's elbow, though Daddy Jim took "little John" away an hour ago. Fate seems to fight for Cap'n Handy—his last half dozen ears have popped at the stalk like pipe-stems. Another minute and he can grab the ears still in front of his antagonist. With adroit awkwardness Moses lurches forward, catches with both hands, and as he recovers balance, clears the rail for his leader. Next minute a wild laughing shout says, Cap'n George has won. By time the patter of ears is hushed, he has been lifted to the shoulders of two stout fellows, and is being borne to supper just behind Marse John, whom Ned and Moses carry with triumphant good will.

In their wake the crowd comes laughing, singing, shouting, with no thought of aching muscles or fingers worn to the quick. The waiting supper is worthy such noble appetites—barbecue, cold ham, wheaten bread, cakes and pies galore, besides coffee and cider and buttermilk. Another stiff dram precedes it, as a final one follows it. To all Marse John says a hearty "Thank ye," then slips away to bed. But the moon is low—at the tree-tops almost, when Daddy Jim parts with his latest lingering crony. He will not go to bed at all. Instead, he sits down in front of the smouldering fire, and says, slow, to himself: "Thank God, ole nigger, you done seed one mo' corn-shuckin' right, an' thank dat dar boy Moses dat de home side didn't got beat!"



A TRAVELLER FROM ALTRURIA.

BY W. D. HOWELLS.

X.

I SAT down, and Mrs. Makely continued: "I have thought it all out, and I want you to confess that in all practical matters a woman's brain is better than a man's. Mr. Bullion, here, says it is, and I want you to say so, too."

"Yes," the banker admitted, "when it comes down to business, a woman is worth any two of us."

"And we have just been agreeing," I coincided, "that the only gentlemen among us are women. Mrs. Makely, I admit, without further dispute, that the most unworldly woman is worldlier than the worldliest man; and that in all practical matters we fade into dreamers and doctrinaires beside you. Now, go on!"

But she did not mean to let me off so easily. She began to brag herself up, as women do, whenever you make them the slightest concession.

"Here, you men," she said, "have been trying for a whole week to get something out of Mr. Homos about his country, and you have left it to a poor, weak woman, at last, to think how to manage it. I do believe that you get so much interested in your own talk, when you are with him, that you don't let him get in a word, and that's the reason you haven't found out anything about Altruria, yet, from him."

In view of the manner in which she had cut in at Mrs. Camp's, and stopped

Homos on the very verge of the only full and free confession he had ever been near making about Altruria, I thought this was pretty cool, but, for fear of worse, I said:

"You're quite right, Mrs. Makely. I'm sorry to say that there has been a shameful want of self-control among us, and that, if we learn anything at all from him, it will be because you have taught us how."

She could not resist this bit of taffy. She scarcely gave herself time to gulp it, before she said:

"Oh, it's very well to say, that, now! But where would you have been, if I hadn't set my wits to work? Now, listen! It just popped into my mind, like an inspiration, when I was thinking of something altogether different. It flashed upon me in an instant: a good object, and a public occasion!"

"Well?" I said, finding this explosive and electrical inspiration rather enigmatical.

"Why, you know, the Union chapel, over in the village, is in a languishing condition, and the ladies have been talking all summer about doing something for it, getting up something—a concert, or theatricals, or a dance, or something—and applying the proceeds to repainting and papering the visible church; it needs it dreadfully. But, of course, those things are not exactly religious, don't you know; and a fair is so much trouble; and *such* a

bore, when you get the articles ready, even; and everybody feels swindled; and now people frown on raffles, so there's no one thinking of them. What you want is something striking. We did think of a parlor-reading, or perhaps ventriloquism; but the performers all charge so much that there wouldn't be anything left after paying expenses."

She seemed to expect some sort of prompting at this point; therefore I said, "Well?"

"Well," she repeated, "that is just where your Mr. Homos comes in."

"Oh!"

"Yes. Get him to deliver a Talk on Altruria. As soon as he knows it's for a good object, he will be on fire to do it; and they must live so much in common there, that the public occasion will be just the thing that will appeal to him."

It did seem a good plan to me, and I said so. But Mrs. Makely was so much in love with it, that she was not satisfied with my modest recognition.

"Good? It's magnificent! It's the very thing! And I have thought it out, down to the last detail—"

"Excuse me!" I interrupted. "Do you think there is sufficient general interest in the subject, outside of the hotel, to get a full house for him? I shouldn't like to see him subjected to the mortification of empty benches."

"What in the world are you thinking of? Why, there isn't a farmhouse, anywhere within ten miles, where they haven't heard of Mr. Homos; and there isn't a servant under this roof, or in any of the boarding-houses, who doesn't know something about Altruria and want to know more. It seems that your friend has been much oftener with the porters and the stable boys than he has been with us."

I had only too great reason to fear so. In spite of my warnings and entreaties, he had continued to behave toward every human being he met, exactly as if they were equals. He apparently could not conceive of that social difference which difference of occupation creates among us. He owned that he saw it, and from the talk of our little group, he knew it existed; but when I expostulated with him upon some act in gross violation of society usage, he only answered that he could

not imagine that what he saw and knew could actually be. It was quite impossible to keep him from bowing with the utmost deference to our waitress; he shook hands with the head waiter every morning as well as with me; there was a fearful story current in the house, that he had been seen running down one of the corridors to relieve a chambermaid laden with two heavy waterpails, which she was carrying to the rooms to fill up the pitchers. This was probably not true, but I myself saw him helping in the hotel hayfield one afternoon, shirt-sleeved like any of the hired men. He said that it was the best possible exercise, and that he was ashamed he could give no better excuse for it than the fact that without something of the kind he should suffer from indigestion. It was grotesque, and out of all keeping with a man of his cultivation and breeding. He was a gentleman and a scholar, there was no denying, and yet he did things in contravention of good form at every opportunity, and nothing I could say had any effect with him. I was perplexed beyond measure, the day after I had reproached him for his labor in the hayfield, to find him in a group of table-girls, who were listening while the head waiter read aloud to them in the shade of the house; there was a corner looking towards the stables which was given up to them by tacit consent of the guests during a certain part of the afternoon. I feigned not to see him, but I could not forbear speaking to him about it. He took it in good part, but he said he had been rather disappointed in the kind of literature they liked, and the comments they made on it; he had expected that with the education they had received, and with their experience of the seriousness of life, they would prefer something less trivial. He supposed, however, that a romantic love story, where a poor American girl marries an English lord formed a refuge for them from the real world which promised them so little and held them so cheap. It was quite useless for one to try to make him realize his behavior in consorting with servants as a kind of scandal.

The worst of it was that his behavior, as I could see, had already begun to demoralize the objects of his misplaced politeness. At first, the servants stared

and resented it, as if it were some tasteless joke; but in an incredibly short time, when they saw that he meant his courtesy in good faith they took it as their due. I had always had a good understanding with the head waiter, and I thought I could safely smile with him at the queer conduct of my friend toward himself and his fellow servants. To my astonishment he said, "I don't see why he shouldn't treat them as if they were ladies and gentlemen. Doesn't he treat you and your friends so?"

It was impossible to answer this, and I could only resolve to suffer in silence, and hope that the Altrurian would soon go. At first I dreaded the moment when the landlord should come and tell me that his room was wanted; now I almost desired it, but he never did. On the contrary, the Altrurian was in high favor with him. He said he liked to see a man make himself pleasant with everybody; and that he did not believe he had ever had a guest in the house who was so popular all round.

"Of course," Mrs. Makely went on, "I don't criticise him—with his peculiar traditions. I presume I should be just so myself if I had been brought up in Altruria, which thank goodness, I wasn't. But Mr. Homos is a perfect dear, and all the women in the house are in love with him, from the cook's helpers, up and down. No, the only danger is that there won't be room in the hotel parlors for all the people that will want to hear him, and we shall have to make the admission something that will be prohibitive in most cases. We shall have to make it a dollar."

"Well," I said, "I think that will settle the question as far as the farming population is concerned. It's twice as much as they ever pay for a reserved seat in the circus, and four times as much as a simple admission to the noblest form of entertainment that they have known. I'm afraid, Mrs. Makely, you're going to be very few, though fit."

"Well, I've thought it all over, and I'm going to put the tickets at a dollar."

"Very good. Have you caught your hare?"

"No, I haven't, yet. And I want you to help me catch him. What do you think is the best way to go about it?"

The banker said he would leave us to the discussion of that question, but Mrs. Makely could count upon him in everything, if she could only get the man to talk. At the end of our conference we decided to interview the Altrurian together; but to let him do all the talking.

I shall always be ashamed of the way that woman wheedled the Altrurian, when we found him the next morning, walking up and down the piazza, before breakfast. That is, it was before our breakfast; when we asked him to go in with us, he said he had just had his breakfast and was waiting for Reuben Camp, who had promised to take him up as he passed with a load of hay for one of the hotels in the village.

"Ah, that reminds me, Mr. Homos," the unscrupulous woman began on him, at once. "We want to interest you in a little movement we're getting up for the Union chapel in the village. You know it's the church where all the different sects have their services, alternately. Of course, it's rather an original way of doing, but there *is* sense in it where the people are too poor to go into debt for different churches, and—"

"It's admirable!" said the Altrurian. "I have heard something about it from the Camps. It is an outward emblem of the unity which ought to prevail among Christians of all professions. How can I help you, Mrs. Makely?"

"I knew you would approve of it!" she exulted. "Well, it's simply this: The poor little place has got so shabby that I'm almost ashamed to be seen going into it, for one; and what we want is to raise money enough to give it a new coat of paint outside—it's never had but one—and put on some kind of pretty paper, of an ecclesiastical pattern, on the inside. I declare, those staring white walls, with the cracks in the plastering zigzagging every *which* way, distract me so that I can't put my mind on the sermon. Don't you think paper, say of a gothic design, would be a great improvement? I'm sure it would; and it's Mr. Twelvemough's idea, too."

I learned this fact now for the first time; but, with Mrs. Makely's warning eye upon me, I could not say so, and I made what sounded to me like a gothic murmur of acquiescence. It sufficed for Mrs.

Makely's purpose, at any rate, and she went on, without giving the Altrurian a chance to say what he thought the devotional effect of paper would be :

"Well, the long and the short of it is that we want you to make this money for us, Mr. Homos."

"I?" He started in a kind of horror. "My dear lady, I never made any money in my life! I should think it *wrong* to make money!"

"In Altruria, yes. We all know how it is in your delightful country, and I assure you that no one could respect your conscientious scruples more than I do. But you must remember that you are in America, now. In America you have to make money, or else—get left. And then you must consider the object, and all the good you can do, indirectly, by a little Talk on Altruria."

He answered, blandly: "A little Talk on Altruria? How in the world should I get money by that?"

She was only too eager to explain, and she did it with so much volubility and at such great length, that I, who am good for nothing till I have had my cup of coffee in the morning, almost perished of an elucidation which the Altrurian bore with the sweetest patience.

When she gave him a chance to answer, at last, he said: "I shall be very happy to do what you wish, madam."

"Will you?" she screamed. "Oh, I'm so glad! You *have* been so slippery about Altruria, you know, that I expected nothing but a point-blank refusal. Of course, I knew you would be kind about it. Oh, I can hardly believe my senses! You can't think what a dear you are." I knew she had got that word from some English people who had been in the hotel; and she was working it rather wildly, but it was not my business to check her. "Well, then, all you have got to do is to leave the whole thing to me, and not bother about it a bit till I send and tell you we are ready to listen. There comes Reuben with his ox-team! Thank you so much, Mr. Homos. No one need be ashamed to enter the house of God"—she said Gaud, in an access of piety—"after we get that paint and paper on it; and we shall have them on before two Sabbaths have passed over it."

She wrung the Altrurian's hand; I was

only afraid she was going to kiss him.

"There is but one stipulation I should like to make," he began.

"Oh, a thousand," she cut in.

"And that is, there shall be no exclusion from my lecture on account of occupation or condition. That is a thing that I can in no wise countenance, even in America; it is far more abhorrent to me even than money-making, though they are each a part and parcel of the other."

"I thought it was that!" she retorted joyously. "And I can assure you, Mr. Homos, there shall be nothing of that kind. Every one—I don't care who it is, or what they do—shall hear you who buys a ticket. Now, will that do?"

"Perfectly," said the Altrurian, and he let her wring his hand again.

She pushed hers through my arm as we started for the dining-room, and leaned over to whisper jubilantly: "That will fix it! He will see how much his precious lower classes care for Altruria if they have to pay a dollar apiece to hear about it. And I shall keep faith with him to the letter."

I could not feel that she would keep it to the spirit; but I could only groan inwardly and chuckle outwardly at the woman's depravity.

It seemed to me though, I could not approve of it, a capital joke, and so it seemed to all the members of the little group whom I had made especially acquainted with the Altrurian. It is true that the minister was somewhat troubled with the moral question, which did not leave me wholly at peace; and the banker affected to find a question of taste involved, which he said he must let me settle, however, as the man's host; if I could stand it, he could. No one said anything against the plan to Mrs. Makely, and this energetic woman made us take two tickets apiece, as soon as she got them printed, over in the village. She got little handbills printed, and had them scattered about through the neighborhood, at all the hotels, boarding-houses and summer cottages, to give notice of the time and place of the talk on Altruria. She fixed this for the following Saturday afternoon, in our hotel parlor; she had it in the afternoon so as not to interfere with the hop in the evening; and she got tickets on sale at the principal houses, and at the

village drug-store, and she made me go about with her and help her sell them at some of the cottages in person.

I must say I found this extremely distasteful, especially in cases where the people were not very willing to buy, and she had to urge them. They all admitted the excellence of the object, but they were not so sure about the means. At several places the ladies asked who was this Mr. Homos, anyway; and how did she know that he was really from Altruria? He might be an imposter.

Then Mrs. Makely would put me forward, and I would be obliged to give such account of him as I could, and to explain just how and why he came to be my guest; with the cumulative effect of bringing back all the misgivings which I had myself felt at the outset concerning him, and which I had dismissed as too fantastic.

The tickets went off rather slowly, even in our own hotel; people thought them too dear; and some, as soon as they knew the price, said frankly they had heard enough about Altruria already, and were sick of the whole thing.

Mrs. Makely said this was quite what she had expected of those people; that they were horrid, and stingy and vulgar; and she should see what face they would have to ask her to take tickets when they were trying to get up something. She began to be vexed with herself, she confessed, at the joke she was playing on Mr. Homos, and I noticed that she put herself rather defiantly *en évidence* in his company, whenever she could in the presence of these reluctant ladies. She told me she had not the courage to ask the clerk how many of the tickets he had sold out of those she had left at the desk. One morning, the third or fourth, as I was going in to breakfast with her, the head waiter stopped her as he opened the door, and asked modestly if she could spare him a few tickets, for he thought he could sell some. To my amazement the unprincipled creature said, "Why, certainly. How many?" and instantly took a package out of her pocket, where she seemed always to have them. He asked, "Would twenty be more than she could spare?" and she answered, "Not at all! Here are twenty-five," and bestowed the whole package on him.

That afternoon Reuben Camp came lounging up toward us, where I sat with her on the corner of the piazza, and said that if she would like to let him try his luck with some tickets for the talk he would see what he could do.

"You can have all you want, Reuben," she said, "and I hope you'll have better luck than I have. I'm perfectly disgusted with people."

She fished several packages out of her pocket this time and he asked, "Do you mean that I can have them all?"

"Every one, and a band of music into the bargain," she answered recklessly. But she seemed a little daunted when he quietly took them. "You know there are a hundred here?"

"Yes, I should like to see what I can do amongst the natives. Then, there is a construction train over at the junction, and I know a lot of the fellows. I guess some of 'em would like to come."

"The tickets are a dollar each, you know," she suggested.

"That's all right," said Camp. "Well, good afternoon."

Mrs. Makely turned to me with a kind of gasp, so he shambled away. "I don't know about that!"

"About having the whole crew of a construction train at the Talk? I dare say it won't be pleasant to the ladies who have bought tickets."

"Oh!" said Mrs. Makely with astonishing contempt, "I don't care what they think. But Reuben has got all my tickets, and suppose he keeps them so long that I won't have time to sell any, and then throws them back on my hands? I know!" she added joyously. "I can go round now, and tell people that my tickets are all gone; and I'll go instantly and have the clerk hold all he has left at a premium."

She came back looking rather blank.

"He hasn't got a single one left. He says an old native came in this morning and took every last one of them—he doesn't remember just how many. I believe they're going to speculate on them; and if Reuben Camp serves me a trick like that—Why!" she broke off, "I believe I'll speculate on them myself! I should like to know why I shouldn't! Oh, I should just like to make some of those creatures pay double or treble for

the chances they've refused. Ah, Mrs. Bulkham," she called out to a lady who was coming down the veranda toward us, "you'll be glad to know I've got rid of all my tickets! *Such a relief!*"

"You *have*?" Mrs. Bulkham retorted.

"Every one!"

"I thought," said Mrs. Bulkham, "that you understood I wanted one for my daughter and myself, if she came."

"I certainly didn't," said Mrs. Makely, with a wink of concentrated wickedness at me. "But if you do, you will have to say so now, without any ifs or ands about it; and if any of the tickets come back—I let friends have a few on sale—I will give you two."

"Well, I do," said Mrs. Bulkham, after a moment.

"Very well, it will be five dollars for the two. I feel bound to get all I can for the cause. Shall I put your name down?"

"Yes," said Mrs. Bulkham, rather crossly; but Mrs. Makely inscribed her name on her tablets with a radiant amiability, which suffered no eclipse, when within the next fifteen minutes a dozen other ladies hurried up, and bought in at the same rate.

I could not stand it, and I got up to go away, feeling extremely *particeps criminis*. Mrs. Makely seemed to have a conscience as light as air.

"If Reuben Camp or the head waiter don't bring back some of those tickets I don't know what I shall do. I shall have to put chairs into the aisles, and charge five dollars apiece for as many people as I can crowd in there. I never knew anything so perfectly providential."

"I envy you the ability to see it in that light, Mrs. Makely," I said, faint at heart. "Suppose Camp crowds the place full of his train men, how will the ladies that you've sold tickets to at five dollars apiece like it?"

"Pooh! What do I care how they like it? Horrid things! And for repairs on the house of Gawd, it's the same as being in church, where everybody is equal."

The time passed. Mrs. Makely sold chances to all the ladies in the house; and on Friday night Reuben Camp brought her a hundred dollars; the head waiter had already paid in twenty-five.

"I didn't dare to ask them if they speculated on them," she confided to me. "Do you suppose they would have the conscience?"

She had secured the large parlor of the hotel, where the young people danced in the evening, and where entertainments were held, of the sort usually given in summer hotels; we had already had a dramatic reading, a séance with the phonograph, an exhibition of necromancy, a concert by a college glee club, and I do not know what else. The room would hold perhaps two hundred people, if they were closely seated, and by her own showing, Mrs. Makely had sold above two hundred and fifty tickets and chances. All Saturday forenoon she consoled herself with the belief that a great many people at the other hotels and cottages had bought seats merely to aid the cause, and would not really come; she estimated that at least fifty would stay away; but if Reuben Camp had sold his tickets among the natives, we might expect every one of them to come and get his money's worth; she did not dare to ask the head waiter how he had got rid of his twenty-five tickets.

The hour set for the Talk to begin was three o'clock, so that people could have their naps comfortably over, after the one o'clock lunch, and be just in the right frame of mind for listening. But long before the appointed time, the people who dine at twelve, and never take an after-dinner nap, began to arrive, on foot, in farm-wagons, smart buggies, mud-cruled carryalls, and all manner of ramshackle vehicles. They arrived as if coming to a circus, old husbands and wives, young couples and their children, pretty girls and their fellows, and hitched their horses to the tails of their wagons, and began to make a picnic lunch in the shadow of the grove lying between the hotel and the station. About two, we heard the snorting of a locomotive at a time when no train was due, and a construction train came in view, with the men waving their handkerchiefs from the windows, and apparently ready for all the fun there was to be in the thing. Some of them had a small flag in each hand, the American stars and stripes, and the flag of Altruria, in compliment to my guest, I suppose. A good many of the farmers came over to the hotel to buy tickets, which they

said they had expected to get after they came, and Mrs. Makely was obliged to pacify them with all sorts of lying promises. From moment to moment she was in consultation with the landlord, who decided to throw open the dining-room, which connected with the parlor, so as to allow the help and the neighbors to hear, without incommoding the hotel guests. She said that this took a great burden off her mind, and that now she should feel perfectly easy, for no one could complain about being mixed up with the servants and the natives, and yet everyone could hear perfectly.

She could not rest till she had sent for Homos and told him of this admirable arrangement. I did not know whether to be glad or not, when he instantly told her that, if there was to be any such separation of his auditors, in recognition of our class distinctions, he must refuse to speak at all.

"Then, what in the world are we to do?" she wailed out, and the tears came into her eyes.

"Have you got the money for all your tickets?" he asked, with a sort of disgust for the whole transaction in his tone.

"Yes, and more, too. I don't believe there's a soul, in the hotel or out of it, that hasn't paid at least a dollar to hear you: and that makes it so very embarrassing. Oh, *dear* Mr. Homos! you won't be so implacably high-principled as all that! Think that you are doing it for the house of Gawd."

The woman made me sick.

"Then, no one," said the Altrurian, "can feel aggrieved, or unfairly used, if I say what I have to say in the open air, where all can listen equally, without any manner of preference or distinction. We will go up to the edge of the grove overlooking the tennis-court, and hold our meeting there, as the Altrurian meetings have always been held, with the sky for a roof, and with no walls but the horizon."

"The very thing!" cried Mrs. Makely. "Who would ever have thought you were so practical, Mr. Homos? I don't believe you're an Altrurian, after all; I believe you are an American in disguise."

The Altrurian turned away, without making any response to this flattering attribution of our nationality to him; but

Mrs. Makely had not waited for any. She had flown off, and I next saw her attacking the landlord, with such apparent success that he slapped himself on the leg and vanished, and immediately the porters and bell-boys and all the men-servants began carrying out chairs to the tennis-court, which was already well set round with benches. In a little while the whole space was covered, and settees were placed well up the ground toward the grove.

By half past two, the guests of the hotel came out, and took the best seats, as by right, and the different tallyhoes and mountain wagons began to arrive from the other hotels, with their silly hotel-cries, and their gay groups dismounted and dispersed themselves over the tennis-court until all the chairs were taken. It was fine to see how the natives and the trainmen and the hotel servants, with an instinctive perception of the proprieties, yielded these places to their superiors, and, after the summer folks were all seated, scattered themselves on the grass and the pine-needles about the border of the grove. I should have liked to instance the fact to the Altrurian, as a proof that this sort of subordination was a part of human nature, and that a principle which pervaded our civilization, after the democratic training of our whole national life, must be divinely implanted. But there was no opportunity for me to speak with him after the fact had accomplished itself, for by this time he had taken his place in front of a little clump of low pines and was waiting for the assembly to quiet itself before he began to speak. I do not think there could have been less than five hundred present, and the scene had that accidental picturesqueness which results from the grouping of all sorts of faces and costumes. Many of our ladies had pretty hats and brilliant parasols, but I must say that the soberer tone of some of the old farm-wives' brown calicoes and out-dated bonnets contributed to enrich the coloring, and here and there the faded blue of an ancient cotton-blouse on a farmer's back had the distinction and poetry of a bit from Millet. There was a certain gayety in the sunny glisten of the men's straw-hats, everywhere, that was very good.

The sky overhead was absolutely stain-

less, and the light of the cool afternoon sun dreamed upon the slopes of the solemn mountains to the east. The tall pines in the background blackened themselves against the horizon; nearer they showed more and more decidedly their bluish green, and the brown of the newly-fallen

needles painted their aisles deep into their airy shadows.

A little wind stirred their tops, and for a moment, just before the Altrurian began to speak, drew from them an organ-tone that melted delicately away as his powerful voice arose.



A STRADIVARIUS.

BY VIRGINIA WOODWARD CLOUD.

THOU prisoned spirit of a forest tree,
 The pulse of some grand hush alone could teach
 Thy sense of speech past any sound that be,
 Thy secret of a sound past any speech!

Held in dumb thrall, a king among thy kind,
 From solitary ages no relief;
 Filled with that self which stirred and round thee vined
 The magic making of a fibered leaf!

And, Oh, the vastness of thy mountain heights!
 The little world beneath thee, fold on fold,
 The nearness of those awe-enraptured nights,
 The birth of dawn and depth of dark untold!

The visage bare of every storm that beat;
 The wailing wind that pierced thee with its woe,
 Or wooed thee gently with a kiss—O sweet!—
 Or soothed thee softly swaying to and fro;

The shudder of a torrent rushing by,
 The tremble of each bird-breast thou hast known,
 The unmoved gaze of each star-face on high,
 The cool, blue calms which thou didst reach alone;

All this on thy great heart of wood was wrought,
 And yet how mute! All life, all death unspoke!
 A loneliness too deep for finite thought,
 The seal of countless centuries unbroke.

But now, ah, now, that thrill! That lifted spell!
 Sob out thy solitude, weep or rejoice!
 The strange pent music of all silence tell,
 God's touch, a soul, hath given thee thy voice!

OMEGA:

THE LAST DAYS OF THE WORLD.

BY CAMILLE FLAMMARION.

IV.

THE last habitable regions of the globe were two wide valleys near the equator, the basins of dried up seas; valleys of slight depth, for the general level was almost absolutely uniform. No mountain peaks, ravines or wild gorges, not a single wooded valley or precipice was to be seen; the world was one vast plain, from which rivers and seas had gradually disappeared. But as the action of meteorological agents, rainfall and streams, had diminished in intensity with the loss of water, the last hollows of the sea bottom had not been entirely filled up, and shallow valleys remained, vestiges of the former structure of the globe. In these a little ice and moisture were left, but the circulation of water in the atmosphere had ceased, and the rivers flowed in subterranean channels as in invisible veins.

As the atmosphere contained no aqueous vapor, the sky was always cloudless, and there was neither rain nor snow. The sun, less dazzling and less hot than formerly, shone with the yellowish splendor of a topaz. The color of the sky was sea-green rather than blue. The volume of the atmosphere had diminished considerably. Its oxygen and nitrogen had become in part fixed in metallic combinations, as oxides and nitrides, and its carbonic acid had slowly increased, as vegetation, deprived of water, became more and more rare and absorbed an ever decreasing amount of this gas. But the mass of the earth, owing to the constant fall of meteorites, bolides and uranolites, had increased with time; so that the atmosphere, though considerably less in volume, had retained its density and exerted nearly the same pressure.



EVA.

Strangely enough, the snow and ice had diminished as the earth grew cold; the cause of this low temperature was the absence of water vapor from the atmosphere, which had decreased with the superficial area of the sea. As the water penetrated the interior of the earth and the general level became more uniform, first the depth and then the area of seas had been reduced, the invisible envelope of aqueous vapor had lost its protecting power, and the day came when the return of the heat received from the sun was no longer prevented, it was radiated into space as rapidly as it was received, as if it fell upon a mirror incapable of absorbing its rays.

Such was the condition of the earth. The last representatives of the human race had survived all these physical transformations solely by virtue of its genius of invention and power of adaptation. Its last efforts had been directed toward extracting nutritious substances from the air, from subterranean water, and from plants, and replacing the vanished vapor of the air by buildings and roofs of glass.

It was necessary at any cost to capture these solar rays and to prevent their radiation into space. It was easy to store up this heat in large quantities, for the sun shone unobscured by any cloud and the day was long—fifty-five hours.

For a long time the efforts of architects had been solely directed towards the imprisonment of the sun's rays and the prevention of their dispersion during the fifty-five hours of the night. They had succeeded in accomplishing this by an ingenious arrangement of glass roofs, superposed one upon the other, and by movable screens. All combustible material had long before been exhausted; and even



THE SOLE SURVIVORS.

the hydrogen extracted from water was difficult to obtain.

The mean temperature in the open air during the daytime was not very low, not falling below -10° .^{*} Notwithstanding the changes which the ages had wrought in vegetable life, no species of plants could exist, even in this equatorial zone.

As for the other latitudes, they had been totally uninhabitable for thousands of years, in spite of every effort made to live in them. In the latitudes of Paris, Nice, Rome, Naples, Algiers and Tunis, all protective atmospheric action had ceased, and the oblique rays of the sun had proved insufficient to warm the soil which was frozen to a great depth, like a veritable block of ice. The world's population had gradually diminished from ten milliards to nine, to eight, and then to seven, one-half the surface of the globe being then habitable. As the habitable zone became more and more restricted to the equator, the population had still further diminished, as had also the mean

length of human life, and the day came when only a few hundred millions remained, scattered in groups along the equator, and maintaining life only by the artifices of a laborious and scientific industry.

Later still, toward the end, only two groups of a few hundred human beings were left, occupying the last surviving centers of industry. From all the rest of the globe the human race had slowly but inexorably disappeared—dried up, exhausted, degenerated, from century to century, through the lack of an assimilable atmosphere and sufficient food. Its last remnants seemed to have lapsed back into barbarism, vegetating like the Esquimaux of the north. These two ancient centers of civ-

ilization, themselves yielding to decay, had survived only at the cost of a constant struggle between industrial genius and implacable nature.

Even here, between the tropics and the equator, the two remaining groups of human beings which still contrived to exist in face of a thousand hardships which yearly became more insupportable, did so only by subsisting, so to speak, on what their predecessors had left behind. These two ocean valleys, one of which was near the bottom of what is now the Pacific ocean, the other to the south of the present island of Ceylon, had formerly been the sites of two immense cities of glass—iron and glass having been, for a long time, the materials chiefly employed in building construction. They resembled vast winter-gardens, without upper stories, with transparent ceilings of immense height. Here were to be found the last plants, except those cultivated in the subterranean galleries leading to rivers flowing under ground.

^{*} Many readers will regard this climate quite bearable, inasmuch, as in our own day regions may be cited whose mean temperature is much lower, yet which are nevertheless habitable: as, for example, Verchotansk, whose mean annual temperature is -19.3° . But in these regions there is a summer during which the ice melts; and if in January the temperature falls to -60° , and even lower, in July they enjoy a temperature of fifteen and twenty degrees above zero. But at the stage which we have now reached in the history of the world, this mean temperature of the equatorial zone was constant, and it was impossible for ice ever to melt again.

Elsewhere the surface of the earth was a ruin, and even here only the last vestiges of a vanished greatness were to be seen.

In the first of these ancient cities of glass, the sole survivors were two old men, and the grandson of one of them, Omegar, who had seen his mother and sisters die, one after the other, of consumption, and who now wandered in despair through these vast solitudes. Of these old men, one had formerly been a philosopher and had consecrated his long life to the study of the history of perishing humanity; the other was a physician, who had in vain sought to save from consumption the last inhabitants of the world. Their bodies seemed wasted by anæmia rather than by age. They were pale as specters, with long, white beards, and only their moral energy sustained them yet an instant against the decree of destiny. But they could not struggle longer against this destiny, and one day Omegar found them stretched lifeless, side by side. From the dying hands of one fell the last history ever written, the history of the final transformations of humanity, written half a century before. The second had died in his laboratory while endeavoring to keep in order the nourishment tubes, automatically regulated by machinery propelled by solar engines.

The last servants, long before developed by education from the simian race, had succumbed many years before, as had also the great majority of the animal species domesticated for the service of humanity. Horses, dogs, reindeers, and certain large birds used in aerial service, yet

survived, but so entirely changed that they bore no resemblance to their progenitors.

It was evident that the race was irrevocably doomed. Science had disappeared with scientists, art with artists, and the survivors lived only upon the past. The heart knew no more hope, the spirit no ambition. The light was in the past; the future was an eternal night. All was over. The glories of days gone by had forever vanished. If, in preceding centuries, some traveller, wandering in these solitudes, thought he had rediscovered the sites of Paris, Rome, or the brilliant capitals which had succeeded them, he was the victim of his own imagination; for these sites had not existed for millions of years, having been swept away by the waters of the sea. Vague



"ALL DAY LONG HE WANDERED THROUGH THE VAST GALLERIES."

traditions had floated down through the ages, thanks to the printing-press and the recorders of the great events of history; but even these traditions were uncertain and often false. For, as to Paris, the annals of history contained only some references to a maritime Paris; of its existence as the capital of France for thousands of years, there was no trace nor memory. The names which to us seem immortal, Confucius, Plato, Mahomet, Alexander, Caesar, Charlemagne, and Napoleon, had perished and were forgotten. Art had, indeed, preserved noble memories; but these memories did not extend as far back as the infancy of humanity, and reached only a few million years into the past. Omegar lingered in an ancient gallery of pictures, bequeathed by former centuries, and contemplated the great cities which had disappeared. Only one of these pictures related to what had once been Europe, and was a view of Paris, consisting of a promontory projecting into the sea, crowned by an astronomical temple and gay with helicopters circling above the lofty towers of its terraces. Immense ships were plowing the sea. This classic Paris was the Paris of the one hundred and seventieth century of the Christian era, corresponding to the one hundred and fifty-seventh of the astronomical era—the Paris which existed immediately prior to the final submergence of the land. Even its name had changed; for words change like persons and things. Near by, other pictures portrayed the great but less ancient cities which had risen in America, Australia, Asia, and afterwards upon the continents which had emerged from the ocean. And so this museum of the past recalled in succession the passing pomps of humanity down to the end.

The end! The hour had struck on the time-piece of destiny. Omegar knew the life of the world thenceforth was in the past, that no future existed for it, and that the present even was vanishing like the dream of a

moment. This last heir of the human race felt the overwhelming sentiment of the vanity of things. Should he wait for some inconceivable miracle to save him from his fate? Should he bury his companions, and share their tomb with them? Should he endeavor to prolong for a few days, a few weeks, a few years even, a solitary, useless and despairing existence? All day long he wandered through the vast and silent galleries, and at night abandoned himself to the drowsiness which oppressed him. All about him was dark—the darkness of the sepulchre.

A sweet dream, however, stirred his slumbering thought, and surrounded his soul with a halo of angelic brightness. Sleep brought him the illusion of life. He was no longer alone. A seductive image, which he had seen more than once before, stood before him. Eyes caressing as the light of heaven, deep as the infinite, gazed upon him and attracted him. He was in a garden filled with the perfume of flowers. Birds sang in the nests amid the foliage. And in the distant landscape, framed in plants and flowers, were the vast ruins of dead cities. Then he saw a lake, on whose rippling surface two swans glided, bearing a cradle from which a new-born child stretched toward him its arms.

Never had such a ray of light illuminated his soul. So deep was his emotion that he suddenly awoke, opened his eyes, and found confronting him only the somber reality. Then a sadness more terrible even than any he had known filled his whole being. He could not find an instant of repose. He rose, went to his couch, and waited anxiously for the morning. He remembered his dream, but he did not believe in it. He felt, vaguely, that another human being existed somewhere; but his degenerate race had lost, in part, its psychic power, and perhaps, also, woman always exerts upon man an attraction more powerful than that which man exerts upon woman. When the day



"ALONE!"

broke, when the last man saw the ruins of his ancient city standing out upon the sky of dawn, when he found himself alone with the two last dead, he realized more than ever his unavoidable destiny, and decided to terminate at once a life so hopelessly miserable.

Going into the laboratory, he sought a bottle whose contents were well known to him, uncorked it, and carried it to his lips, to empty it at a draught.

But, at the very moment the vial touched his lips, he felt a hand upon his arm.

He turned suddenly. There was no one in the laboratory, and in the gallery he found only the two dead.

V.

In the ruins of the other equatorial city, occupying a once submerged valley south of the island of Ceylon, was a young girl, whose mother and older sister had perished of consumption and cold, and who was now left alone, the last surviving member of the last family of the race. A few trees, of northern species, had been preserved under the spacious dome of glass, and beneath their scanty foliage, holding the cold hands of her mother who had died the night before, the young girl sat alone, doomed to death in the very flower of her age. The night was cold. In the sky above the full moon shone like a golden torch, but its yellow rays were as cold as the silver beams of the ancient Selene. In the vast room reigned the stillness and solitude of death, broken only by the young girl's breathing, which seemed to animate the silence with the semblance of life.

She was not weeping. Her sixteen years contained more experience and knowledge than sixty years of the world's prime. She knew that she was the sole survivor of this last group of human beings, and that every happiness, every joy and every hope had vanished forever. There was no present, no future; only

solitude and silence, the physical and moral impossibility of life, and soon eternal sleep. She thought of the women of bygone days, of those who had lived the real life of humanity, of lovers, wives and mothers, but to her red and tearless eyes appeared only images of death; while beyond the walls of glass stretched a barren desert, covered by the last ice and the last snow. Now her young heart beat violently in her breast, till her slender hands could no longer compress its tumult; and now life seemed arrested



"A FEW TREES OF NORTHERN SPECIES HAD BEEN PRESERVED."

in her bosom, and every respiration suspended. If for a moment she fell asleep, in her dreams she played again with her laughing and care-free sister, while her mother sung in a pure and penetrating voice the beautiful inspirations of the last poets; and she seemed to see, once more, the last fêtes of a brilliant society, as if reflected from the surface of some distant mirror. Then, on awakening, these magic memories faded into the somber reality. Alone! Alone in the world, and tomorrow death, without having known life! To struggle against this unavoidable fate was useless; the decree of destiny was without appeal, and there was nothing to do but to submit, to await the inevitable end, since without food or air organic life was impossible—or else to anticipate death and deliver oneself at once from a joyless existence and a certain doom.

She passed into the bath-room, where

the warm water was still flowing, although the appliances which art had designed to supply the wants of life were no longer in working order; for the last remaining servants (descendants of ancient simian species, modified, as the human race had been, by the changing conditions of life,) had also succumbed to the insufficiency of water. She plunged into the perfumed bath, turned the key which regulated the supply of electricity derived from subterranean water-courses still unfrozen, and for a moment seemed to forget the decree of destiny in the enjoyment of this refreshing rest. Had any indiscreet spectator beheld her as, standing upon the bearskin before the large mirror, she began to arrange the tresses of her long auburn hair, he would have detected a smile upon her lips, showing that, for an instant, she was oblivious of her dark future. Passing into another room, she approached the apparatus which furnished the food of that time, extracted from water, air, and the plants and fruits automatically cultivated in the greenhouses.

It was still in working order, like a clock which has been wound up. For thousands of years the genius of man had been almost exclusively applied to the struggle with destiny. The last remaining water had been forced to circulate in subterranean canals, where also the solar heat had been stored. The last animals had been trained to serve these machines, and the nutritious properties of the last plants had been utilized to the utmost. Men had finally succeeded in living upon almost nothing, so far as quantity was concerned; every newly discovered form of food being completely assimilable. Cities had finally been built of glass, open to the sun, to which was conveyed every substance necessary to the synthesis of the food which replaced the products of nature. But as time passed, it became more and more difficult to obtain the necessities of life. The mine was at last exhausted. Matter had been conquered by intelligence; but the day had come when intelligence itself was overmatched, when every worker had died at his post and the earth's storehouse had been depleted. Unwilling to abandon this desperate struggle, man had put forth every effort. But he could not prevent the earth's absorption of water,

and the last resources of a science which seemed greater even than nature itself had been exhausted.

Eva returned to the body of her mother, and once more took the cold hands in her own. The psychic faculties of the race in these its latter days had acquired, as we have said, transcendent powers, and she thought for a moment to summon her mother from the tomb. It seemed to her as if she must have one more approving glance, one more counsel. A single idea took possession of her, so fascinating her that she even lost the desire to die. She saw afar the soul which should respond to her own. Every man belonging to that company of which she was the last survivor had died before her birth. Woman had outlived the sex once called strong. In the pictures upon the walls of the great library, in books, engravings and statues, she saw represented the great men of the city, but she had never seen a living man; and still dreaming, strange and disquieting forms passed before her. She was transported into an unknown and mysterious world, into a new life, and love did not seem to be yet wholly banished from earth. During the reign of cold, all electrical communication between the two last cities left upon the earth had been interrupted. Their inhabitants could speak no more with each other, see each other no more, nor feel each other's presence. Yet she was as well acquainted with the ocean city as if she had seen it, and when she fixed her eyes upon the great terrestrial globe suspended from the ceiling of the library, and then, closing them, concentrated all her will and psychic power upon the object of her thought, she acted at a distance as effectively, though in a different way, as in former days men had done when communicating with each other by electricity. She called, and felt that another heard and understood. The preceding night she had transported herself to the ancient city in which Omega lived, and had appeared to him for an instant in a dream. That very morning she had witnessed his despairing act and by a supreme effort of the will had arrested his arm. And now, stretched in her chair beside the dead body of her mother, heavy with sleep, her solitary soul wandered in dreams above the ocean city, seeking the companionship of the

only mate left upon the earth. And far away, in that ocean city, Omegar heard her call. Slowly, as in a dream, he ascended the platform from which the air-ships used to take their flight. Yielding to a mysterious influence, he obeyed the distant summons. Speeding toward the west, the electric air-ship passed above the frozen regions of the tropics, once the site of the Pacific ocean, Polynesia, Malaisia and the Sunda islands, and stopped at the landing of the crystal palace.

The young girl, startled from her dream by the traveller, who fell from the air at her feet, fled in terror to the farther end of the immense hall, lifting the heavy curtain of skin which separated it from the library. When the young man reached her side, he stopped, knelt, and took her hand in his, saying simply: "You called me. I have come." And then he added: "I have known you for a long time. I knew that you existed, I have often seen you; you are the constant thought of my heart, but I did not dare to come."

She bade him rise, saying: "My friend, I know that we are alone in the world, and that we are about to die. A will stronger than my own compelled me to call you. It seemed as if it were the supreme desire of my mother, supreme even in death. See, she sleeps thus since yesterday. How long the night is!"

The young man, kneeling, had taken the hand of the dead, and they both stood there beside the funeral couch, as if in prayer.

He leaned gently toward the young girl, and their heads touched.

He let fall the hand of the dead.

Eva shuddered. "No," she said.

Then, suddenly, he sprang to his feet in terror; the dead woman had revived. She had withdrawn the hand which he had taken in his own, and had opened her eyes. She made a movement, looking at them.

"I wake from a strange dream," she said, without seeming surprised at the presence of Omegar. "Behold, my children, my dream;" and she pointed to the planet Jupiter, shining with dazzling splendor in the sky.



"SHE FELT THAT ANOTHER HEARD AND UNDERSTOOD."

And as they gazed upon the star, to their astonished vision it appeared to approach them, to grow larger, to take the place of the frozen scene about them.

Its immense seas were covered with ships. Aërial fleets cleaved the air. The shores of its seas and the mouths of its great rivers were the scenes of a prodigious activity. Brilliant cities appeared, peopled by moving multitudes. Neither the details of their habitations nor the forms of these new beings could be distinguished, but one divined that here was a humanity quite different from ours, living in the bosom of another nature, having other senses at its disposal; and one felt also that this vast world was incomparably superior to the earth.

"Behold, where we shall be tomorrow!"

said the dying woman. "We shall find there all the human race, perfected and transformed. Jupiter has received the inheritance of the earth. Our world has accomplished its mission, and life is over here below. Farewell!"

She stretched out her arms to them; they bent over her pale face and pressed a long kiss upon her forehead. But they perceived that this forehead was cold as marble, in spite of this strange awakening.

The dead woman had closed her eyes, to open them no more.

VI.

It is sweet to live. Love atones for every loss; in its joy all else is forgotten. Ineffable music of the heart, thy divine melody fills the soul with an ecstasy of infinite happiness! What illustrious historians have celebrated the heroes of the world's progress, the glories of war, the conquests of mind and of spirit! Yet after so many centuries of labor and struggle, there remained only two palpitating hearts, the kisses of two lovers. All had perished except love; and love, the supreme sentiment, endured, shining like an inextinguishable beacon over the immense ocean of the vanished ages.

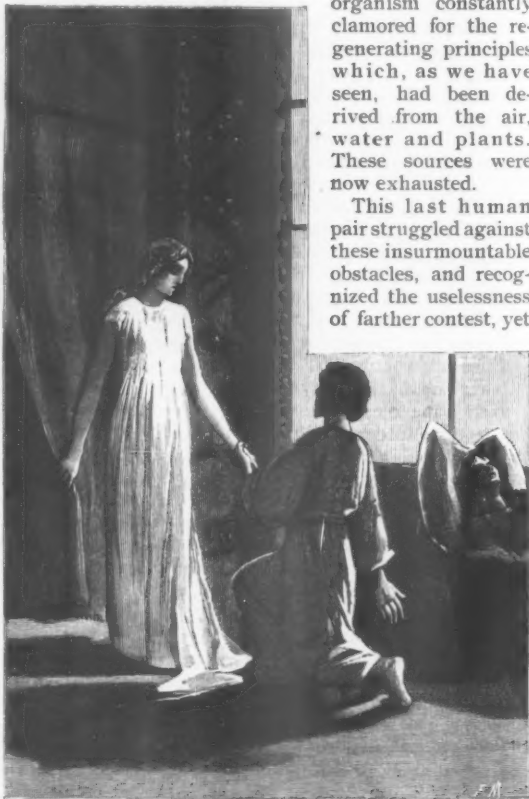
Death! They did not dream of it. Did they not suffice for each other? What if the cold froze their very marrow? Did they not possess in their hearts a warmth which defied the cold of nature? Did not the sun still shine gloriously, and was not the final doom of the world yet far distant? Omega bent every energy to the maintenance of the marvellous system which had been devised for the automatic extraction by chemical processes of the nutritive principles of the air, water and plants, and in this he

seemed to be successful. So in other days, after the fall of the Roman empire, the barbarians had been seen to utilize during centuries the aqueducts, baths and thermal springs, all the creations of the civilization of the Cæsars, and to draw from a vanished industry the sources of their own strength.

But, one day, wonderful as it was, this system gave out. The subterranean waters themselves ceased to flow. The soil was frozen to a great depth. The rays of the sun still warmed the air within the glass-covered dwellings, but no plant could live longer; the supply of water was exhausted.

The combined efforts of science and industry were impotent to give to the atmosphere the nutritive qualities possessed by those of other worlds, and the human organism constantly clamored for the regenerating principles which, as we have seen, had been derived from the air, water and plants. These sources were now exhausted.

This last human pair struggled against these insurmountable obstacles, and recognized the uselessness of farther contest, yet



"YOU CALLED ME. I HAVE COME."

they were not resigned to death. Before knowing each other they had awaited it fearlessly. Now each wished to defend the other, the beloved one, against pitiless destiny. The very idea of seeing Omegar lying inanimate beside her, filled Eva with such anguish that she could not bear the thought. And he, too, vainly longed to carry away his well beloved from a world doomed to decay, to fly with her to that brilliant Jupiter which awaited them, and not to abandon to the earth the body he adored.

He thought that, perhaps, there still existed, somewhere upon the earth, a spot which had retained a little of that life-giving water without which existence was impossible; and, although already they were both almost without strength, he formed the supreme resolution of setting out to seek for it. The electric *aéronef* was still in working order. Forsaking the city which was now only a tomb, the two last survivors of a vanished humanity abandoned these inhospitable regions and set out to seek some unknown oasis.

The ancient kingdoms of the world passed under their feet. They saw the remains of great cities, made illustrious by the splendors of civilization, lying in ruins along the equator. The silence of death covered them all. Omegar recognized the ancient city which he had recently left, but he knew that there, also the supreme source of life was lacking, and they did not stop. They traversed thus, in their solitary air-ship, the regions which had witnessed the last stages of the life of humanity; but death, and silence, and the frozen desert was everywhere. No more fields, no more vegetation; the water-courses were visible as on a map, and it was evident that along their banks



"BEHOLD, WHERE WE SHALL BE TOMORROW!"

life had been prolonged; but they were now dried up forever. And when, at times, some motionless lake was distinguished in the lower levels, it was like a lake of stone; for even at the equator the sun was powerless to melt the eternal ice. A kind of bear, with long fur, was still to be seen wandering over the frozen earth, seeking in the crevices of the rocks its scanty vegetable food. From time to time, also, they descried a kind of penguin and sea-cows walking upon the ice, and large, gray polar birds in awkward flight, or alighting mournfully.

Nowhere was the sought-for oasis found. The earth was indeed dead.

Night came. Not a cloud obscured the sky. A warmer current from the south had carried them over what was formerly Africa, now a frozen waste. The mechan-

ism of the *aéronef* had ceased to work. Exhausted by cold rather than by hunger, they threw themselves upon the bearskins in the bottom of the car.

Perceiving a ruin, they alighted. It was an immense quadrangular base, revealing traces of an enormous stone stairway. It was still possible to recognize one of the ancient Egyptian pyramids which, in the middle of the desert, survived the civilization which it represented. With all Egypt, Nubia and Abyssinia, it had sunk below the level of the sea, and had afterwards emerged into the light and been restored in the heart of a new capital by a new civilization, more brilliant than that of Thebes and of Memphis, and finally had been again abandoned to the desert. It was the only remaining monument of the earlier life of humanity, and owed its stability to its geometric form.

"Let us rest here," said Eva, "since we are doomed to die. Who, indeed, has escaped death? Let me die in peace in your arms."

They sought a corner of the ruin and sat down beside each other, face to face with the silent desert. The young girl cowered upon the ground, pressing her husband in her arms, still striving with all her might against the penetrating cold. He drew her to his heart, and warmed her with his kisses.

"I love you, and I am dying," she said. "But, no, we will not die. See that star, which calls us!"

At the same moment they heard behind them a slight noise, issuing from the ancient tomb of Cheops, a noise like that the wind makes in the leaves. Shuddering, they turned, together, in the direction whence the sound came. A white shadow, which seemed to be self-luminous, for the night was already dark and there was no moon, glided rather than walked toward them, and stopped before their astonished eyes.

"Fear nothing," it said. "I come to seek

you. No, you shall not die. No one has ever died. Time flows into eternity; eternity remains.

I was Cheops, King of Egypt, and I reigned over this country in the early days of the world. As a slave, I have since expiated my crimes in many existences, and when at length my soul deserved immortality I lived upon Neptune, Ganymede, Rhea, Titan, Saturn, Mars, and other worlds as yet unknown to you. Jupiter is now my home. In the days of humanity's greatness, Jupiter was not habitable for intelligent beings. It was passing through the necessary stages of preparation. Now this immense world is the heir to all human achievement. Worlds succeed each other in time as in space. All is eternal, and merges into the divine. Confide in me, and follow me."

And as the old Pharaoh was still speaking, they felt a delicious fluid penetrate their souls, as sometimes the ear is filled with an exquisite melody. A sense of calm and transcendent happiness flowed in their veins. Never, in any dream, in any ecstasy, had they ever experienced such joy.

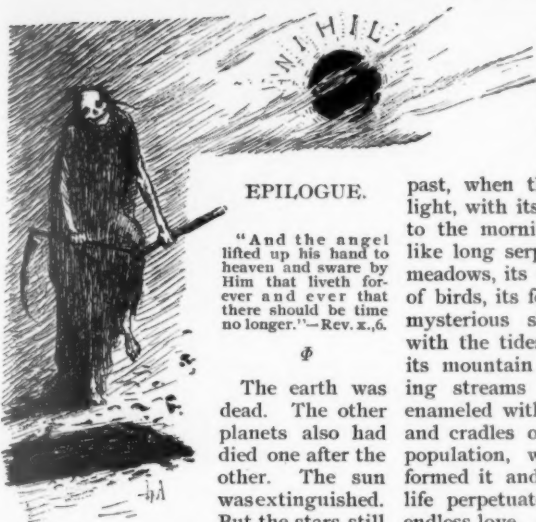
Eva pressed Omegar in her arms "I love you," she repeated. Her voice was only a breath. He touched his lips to her already cold mouth, and heard them murmur: "How I could have loved!"

Jupiter was shining majestically above them, and in the glorious light of his rays their sight grew dim and their eyes gently closed.

The spectre rose into space and vanished. And one to whom it is given to see, not with the bodily eyes, which perceive only material vibrations, but with the eyes of the soul which perceive psychical vibrations, might have seen two small flames shining side by side, united by a common attraction, and rising together with the tomb, into the *éther*.



LOVE THE CONQUEROR.



EPILOGUE.

"And the angel lifted up his hand to heaven and swore by Him that liveth forever and ever that there should be time no longer."—Rev. x., 6.

Φ

The earth was dead. The other planets also had died one after the other. The sun was extinguished. But the stars still

shone; there were still suns and worlds.

In the measureless duration of eternity, time, an essentially relative conception, is determined by each world, and even in each world this conception is dependent upon the consciousness of the individual. Each world measures its own duration. The year of the earth is not that of Neptune. The latter is 164 times the former, and yet is not longer relatively to the absolute. There is no common measure between time and eternity. In empty space there is no time, no years, no centuries; only the possibility of a measurement of time which becomes real the moment a revolving world appears. Without some periodic motion no conception whatever of time is possible.

The earth no longer existed, nor her celestial companion, the little isle of Mars, nor the beautiful sphere of Venus, nor the colossal world of Jupiter, nor the strange universe of Saturn, which had lost its rings, nor the slow-moving Uranus and Neptune—not even the glorious sun, in whose fecundating heat these mansions of the heavens had basked for so many centuries. The sun was a dark ball, the planets also; and still this inextinguishable system sped on in the glacial cold of empty space. So far as life is concerned, all these worlds were dead, did not exist. They survived their past history like the ruins of the dead cities of

Assyria which the archaeologist uncovers in the desert, moving on their way in darkness through the invisible and the unknown.

No genius, no magician could recall the vanished

past, when the earth floated bathed in light, with its broad green fields waking to the morning sun, its rivers winding like long serpents through the verdant meadows, its woods alive with the songs of birds, its forests filled with deep and mysterious shadows, its seas heaving with the tides or roaring in the tempest, its mountain slopes furrowed with rushing streams and cascades, its gardens enameled with flowers, its nests of birds and cradles of children, and its toiling population, whose activity had transformed it and who lived so joyously a life perpetuated by the delights of an endless love. All this happiness seemed eternal. What has become of those mornings and evenings, of those flowers and those lovers, of that light and perfume, of those harmonies and joys, of those beauties and dreams? All is dead, has disappeared in the darkness of night.

The world dead, all the planets dead, the sun extinguished. The solar system annihilated, time itself suspended.

Time lapses into eternity. But eternity remains, and time is born again.

Before the existence of the earth, throughout an eternity, suns and worlds existed, peopled with beings like ourselves. Millions of years before the earth was, they were. The past of the universe has been as brilliant as the present, the future will be as the past, the present is of no importance.

In examining the past history of the earth, we might go back to a time when our planet shone in space, a veritable sun, appearing as Jupiter and Saturn do now, shrouded in a dense atmosphere charged with warm vapors; and we might follow all its transformations down to the period of man. We have seen that when its heat was entirely dissipated, its waters absorbed, the aqueous vapor of its atmosphere gone, and this atmosphere itself more or less absorbed, our planet must have presented the appearance of those great lunar deserts seen through the telescope (with certain differences due to the

action of causes peculiar to the earth), with its final geographical configurations, its dried-up shores and water-courses, a planetary corpse, a dead and frozen world. It still bears, however, within its bosom an unexpended energy—that of its motion of translation about the sun, an energy which, transformed into heat by the sudden destruction of its motion, would suffice to melt it and to reduce it, in part, to a state of vapor, thus inaugurating a new epoch; but for an instant only, for, if this motion of translation were destroyed, the earth would fall into the sun and its independent existence would come to an end. If suddenly arrested, it would move in a straight line toward the sun, with an increasing velocity, and reach the sun in sixty-five days; were its motion gradually arrested, it would move in a spiral, to be swallowed up, at last, in the central luminary.

The entire history of terrestrial life is before our eyes. It has its commencement and its end; and its duration, however many the centuries which compose it, is preceded and followed by eternity—is, indeed, but a single instant lost in eternity.

For a long time after the earth had ceased to be the abode of life, the colossal worlds of Jupiter and Saturn, passing more slowly from their solar to their planetary stage, reigned in their turn among the planets, with the splendor of a vitality incomparably superior to that of our earth. But they, also, waxed old and descended into the night of the tomb.

X

Had the earth, like Jupiter, for example, retained long enough the elements of life, death would have come only with the extinction of the sun. But the length of the life of a world is proportional to its size and its elements of vitality.

The solar heat is due to two principal causes—the condensation of the original nebula, and the fall of meteorites. According to the best established calculations of thermodynamics, the former has produced a quantity of heat eighteen million times greater than that which the sun radiates yearly, supposing the original nebula was cold, which there is no reason to believe was the case. It is, therefore, certain that the solar temperature produced by this condensation far exceeded

the above. If condensation continues, the radiation of heat may go on for centuries without loss.

The heat emitted every second is equal to that which would result from the combustion of eleven quadrillions six hundred thousand milliards of tons of coal burning at once! The earth intercepts only one five hundredth millionth part of the radiant heat, and this one five hundredth millionth suffices to maintain all terrestrial life. Of sixty-seven millions of light and heat rays which the sun radiates into space, only one is received and utilized by the planets.

Well! to maintain this source of heat it is only necessary that the rate of condensation should be such that the sun's diameter should decrease seventy-seven meters a year, or one kilometer in thirteen years. This contraction is so gradual that it would be wholly imperceptible. Nine thousand five hundred years would be required to reduce the diameter by one single second of arc.

Even if the sun be actually in a gaseous state, its temperature, so far from growing less, or even remaining stationary, would increase by the very fact of contraction; for if on the one hand the temperature of a gaseous body falls when it condenses, on the other hand the heat generated by contraction is more than sufficient to prevent a fall in temperature, and the amount of heat increases until a liquid state is reached. The sun seems to have reached this stage.

The condensation of the sun, whose density is only one-fourth that of the earth, may thus of itself maintain for centuries, at least for ten million years, the light and heat of this brilliant star. But we have just spoken of a second source of heat: the fall of meteorites. One hundred and forty-six million meteorites fall upon the earth yearly. A vastly greater number fall into the sun, because of its greater attraction. If their mass equals about the one hundredth part of the mass of the earth, their fall would suffice to maintain the temperature,—not by their combustion, for if the sun itself was being consumed it would not have lasted more than six thousand years, but by the sudden transformation of the energy of motion into heat, the velocity of impact being 650,000 meters

per second, so great is the solar attraction.

If the earth should fall into the sun, it would make good for ninety-five years the actual loss of solar energy; Venus would make good this loss for eighty-four years; Mercury for seven; Mars for thirteen; Jupiter for 32,254; Saturn for 9652; Uranus for 1610; and Neptune for 1890 years. That is to say, the fall of all the planets into the sun would produce heat enough to maintain the present rate of expenditure for about 46,000 years.

It is therefore certain that the fall of meteors greatly lengthens the life of the sun. One thirty-third millionth of the solar mass added each year would compensate for the loss, and half of this would be sufficient if we admit that condensation shares equally with the fall of meteorites in the maintenance of solar heat; centuries would have to pass before any acceleration of the planets' velocities would be apparent.

Owing to these two causes alone we may, therefore, admit a future for the sun of at least twenty million years; and this period cannot but be increased by other unknown causes, to say nothing of an encounter with a swarm of meteorites.

The sun therefore was the last living member of the system; the last animated by the warmth of life.

But the sun also went out. After having so long poured upon his celestial children his vivifying beams, the black spots upon his surface increased in number and in extent, his brilliant photosphere grew dull, and his hitherto dazzling surface became congealed. An enormous red ball took the place of the dazzling center of the vanished worlds.

For a long time this enormous star maintained a high surface temperature, and a sort of phosphorescent atmosphere; its virgin soil, illumined by the light of the stars and by the electric influences which formed a kind of atmosphere, gave birth to a marvelous flora, to an unknown fauna, to beings differing absolutely in organization from those who had succeeded each other upon the worlds of its system.

But for the sun also the end

came, and the hour sounded on the time-piece of destiny when the whole solar system was stricken from the book of life. And one after another the stars, each one of which is a sun, a solar system, shared the same fate: yet the universe continued to exist as it does today.

ψ

The science of mathematics tells us: "The solar system does not appear to possess at present more than the one four hundred and fifty-fourth part of the transformable energy which it had in the nebulous state. Although this remainder constitutes a fund whose magnitude confounds our imagination, it will also someday be exhausted. Later, the transformation will be complete for the entire universe, resulting in a general equilibrium of temperature and pressure.

"Energy will not then be susceptible of transformation. This does not mean annihilation, a word without meaning, nor does it mean the absence of motion, properly speaking, since the same sum of energy will always exist in the form of atomic motion, but the absence of all sensible motion, of all differentiation, the absolute uniformity of conditions, that is to say, absolute death."

Such is the present statement of the science of mathematics.

Experiment and observation prove that on the one hand the quantity of matter, and on the other hand the quantity of energy also, remains constant, whatever the change in form or in position; but they also show that the universe tends to a state of equilibrium, a condition in which its heat will be uniformly distributed.

The heat of the sun and of all the stars seems to be due to the transformation of their initial energy of motion, to molecular impacts; the heat thus generated is being constantly radiated into space, and this radiation will go on until every sun is cooled down to the temperature of space itself. If we admit that the sciences of today, mechanics, physics and mathematics, are trustworthy, and that the laws which now control the operations of nature



and of reason are permanent, this must be the fate of the universe.

Far from being eternal, the earth on which we live has had a beginning. In eternity a hundred million years, a thousand million years or centuries, are as a day. There is an eternity behind us and before us, and all apparent duration is but a point. A scientific investigation of nature and acquaintance with its laws raises, therefore, the question already raised by the theologians, whether Plato, Zoroaster, Saint Augustine, Saint Thomas Aquinas, or some young seminarist who has just taken orders: "What was God doing before the creation of the universe, and what will he do after its end?" Or, under a less anthropomorphic form, since God is unknowable: "What was the condition of the universe prior to the present order of things, and what will it be after this order has passed away?"

Note that the question is the same, whether we admit a personal God, reasoning and acting toward a definite end, or whether we deny the existence of any spiritual being, and admit only the existence of indestructible atoms and forces representing an invariable sum of energy. In the first case, why should God, an eternal and uncreated power, remain inactive? Or, having remained inactive, satisfied with the absolute infinity of his nature which nothing could augment, why did he change this state and create matter and force? The theologian may reply: "Because it was his good pleasure." But philosophy is not satisfied with this change in the divine purpose. In the second case, since the origin of the present condition of things only dates back a certain time, and since there can be no effect without a cause, we have the right to ask what was the condition of things anterior to the formation of the present universe.

Although energy is indestructible, we certainly cannot deny the tendency toward its universal dissipation, and this must lead to absolute repose and death, for the conclusions of mathematics are irresistible.

Nevertheless, we do not concede this.

Why?

Because the universe is not a definite quantity.

Ω

It is impossible to conceive of a limit to the extension of matter. Limitless space, the inexhaustible source of the transformation of potential energy into visible motion, and thence into heat and other forces, confronts us, and not a simple, finished piece of mechanism, running like a clock and stopping forever.

The future of the universe is its past. If the universe were to have had an end, this end would have been reached long ago, and we should not be here to study this problem.

It is because our conceptions are finite, that things have a beginning and an end. We cannot conceive of an absolutely endless series of transformations, either in the future or in the past, nor that an equally endless series of material combinations, of planets, suns, sun-systems, milky ways, stellar universes, etc., can succeed each other. Nevertheless, the heavens are there to show us the infinite. Nor can we comprehend any better the infinity of space or of time; yet it is impossible for us to conceive of a limit to either, for our thought overleaps the limit, and is impotent to conceive of bounds beyond which there is no space nor time. One may travel forever, in any direction, without reaching a boundary, and as soon as anyone affirms that at a certain moment duration ceases, we refuse our assent; for we cannot confound time with the human measures of it.

These measures are relative and arbitrary; but time itself exists, like space, independently of them. Suppress everything, space and time would still remain; that is to say, space which material things may occupy, and the possibility of the succession of events. If this were not so, neither space nor time would be really measurable, not even in thought, since thought would not exist. But it is impossible for the mind even to suppress either the one or the other. Strictly speaking, it is neither space nor time that we are speaking of, but infinity and eternity, relative to which every measure, however great, is but a point.

We do not comprehend or conceive of infinite space or time, because we are incapable of it. But this incapacity does not invalidate the existence of the ab-



solute. In confessing that we do not comprehend infinity, we feel it about us, and that space, as bounded by a wall or any barrier whatever, is in itself an absurd idea. And we are equally incapable of denying the possibility of the existence, at some instant of time, of a system of worlds whose motions would measure time without creating it. Do our clocks create time? No, they do but measure it. In the presence of the absolute, our measures of both time and space vanish; but the absolute remains.

We live, then, in the infinite, without doubting it for an instant. The hand which holds this pen is composed of eternal and indestructible elements, and the atoms which constitute it existed in the solar nebula whence our planet came, and will exist forever. Your lungs breathe, your brains think, with matter and forces which acted millions of years ago and will act endlessly. And the little globule which we inhabit floats, not at the center of a limited universe, but in the depth of infinity, as truly as does the most distant star which the telescope can discover.

The best definition of the universe ever given, to which there was nothing to add, is Pascal's, "A sphere whose center is everywhere and circumference nowhere."

It is this infinity which assures the eternity of the universe.

Stars, systems, myriads, millions, universes succeed each other without end in

every direction. We do not live near a center which does not exist, and the earth like the farthest star, lies in the fathomless infinite.

No bounds to space. Fly in thought in any direction with any velocity for months, years, centuries, forever, we shall meet with no limit, approach no boundary, we shall always remain in the vestibule of the infinite before us.

No bounds to time. Live in imagination through future ages, add centuries to centuries, epoch to epoch, we shall never attain the end, we shall always remain in the vestibule of the eternity which opens before us.

In our little sphere of terrestrial observation we see that, through all the transformations of matter and motion, the same quantity of each remains, though under new forms. Living beings afford a perpetual illustration of this: they are born, they grow by appropriating substances from the world without, and when they die they break up and restore to nature the elements of which they are composed. But by a law whose action never ceases other bodies are constituted from these same elements. Every star may be likened to an organized being, even as regards its internal heat. A body is alive so long as respiration and the circulation of the blood makes it possible for the various organs to perform their functions. When equilibrium and repose are reached, death

follows ; but after death all the substances of which the body was formed are wrought into other beings. Dissolution is the prelude to recreation. Analogy leads us to believe that the same is true of the cosmos. Nothing can be destroyed. *There is an incommensurable Power, which we are obliged to recognize as limitless in space and without beginning or end in time, and this Power is that which persists through all the changes in those sensible appearances under which the universe presents itself to us.*

For this reason there will always be suns and worlds, not like ours, but still suns and worlds succeeding each other through all eternity.

And for us this visible universe can only be the changing *appearance* of the absolute and eternal *reality*.

A

It is in virtue of this transcendent law that, long after the death of the earth, of the giant planets and the central luminary, while our old and darkened sun was still speeding through boundless space, with its dead worlds on which terrestrial and planetary life had once engaged in the futile struggle for daily existence, another extinct sun, issuing from the depths of infinity, collided obliquely with it and brought it to rest !

Then in the vast night of space, from the shock of these two mighty bodies was suddenly kindled a stupendous conflagration, and an immense gaseous nebula was

formed, which trembled for an instant like a flaring flame, and then sped on into regions unknown. Its temperature was several million degrees. All which here below had been earth, water, air, minerals, plants, atoms ; all which had constituted man, his flesh, his palpitating heart, his flashing eye, his armed hand, his thinking brain, his entrancing beauty ; the victor and the vanquished, the executioner and his victim, and those inferior souls still wearing the fetters of matter, — all were changed into fire. And so with the worlds of Mars, Venus, Jupiter, Saturn, and the rest. It was the resurrection of visible nature. But those superior souls which had acquired immortality continued to live forever in the hierarchy of the invisible psychic universe. The conscious existence of mankind had attained an ideal state. Mankind had passed by transmigration through the worlds to a new life with God, and freed from the burdens of matter, soared with an endless progress in eternal light.

The immense gaseous nebula, which absorbed all former worlds, thus transformed into vapor, began to turn upon itself. And in the zones of condensation of this primordial star-mist, new worlds were born, as heretofore the earth was.

So another universe began, whose genesis some future Moses and Laplace would tell, a new creation, extra-terrestrial, super-human, inexhaustible, resembling neither the earth nor Mars, nor Saturn, nor the sun.

And new humanities arose, new civilizations, new vanities, another Babylon, another Thebes, another Athens, another Rome, another Paris, new palaces, temples, glories and loves. And all these things possessed nothing of the earth, whose very memory had passed away like a shadow.

And these universes passed away in their turn. But infinite space remained, peopled with worlds, and stars, and souls, and suns ; and time went on forever.

For there can be neither end, nor beginning.



FINIS.

EVOLUTION.

BY RICHARD WHITTINGHAM.

SOMETIME since, in a prominent and widely circulated periodical, there was an article published, treating of The Hypothesis of Materialism. In it occurred the following passage: "This doctrine of evolution is . . . plainly inconsistent with the Word of God, as to the origin of man."

While having neither interest or part in materialism, the writer of the present article strongly objects to the sweeping generalization of such an assertion, and has, therefore, prepared the following comparison of the two named statements, by which any calm and unprejudiced mind can readily compare them and judge how far they can be pronounced antagonistic.

It must be remembered that the theory of evolution is a very different thing from the deductions of some evolutionists. The theory of evolution is pretty well known to most intelligent readers. Pure and simple, it is this: By the operation of physical laws, the functions of life and all the varying forms of different species, in all kingdoms, are derived from original germs in one or more earlier types; and by an ascending scale all nature is progressively evolved from the moneres up to man. This, and nothing more, is the theory. If admitted as a fact, that it is "plainly inconsistent with the Word of God" is hereby denied; to demonstrate the justice of which denial, we design to place the two statements side by side, and, without argument or discussion, let them testify for themselves.

STATEMENT OF THE NATURALIST.

As far as the light of science enables us to penetrate, the first condition of the earth was: without planetary form or matter, in its nebulous condition, and consisting of atoms in their enormously rarified or fluid state, having motion as cosmic vapor; but, coming under the influence of gravitation, these deliquidated rotary particles condensed, first to the center, then through their mass, and so, of necessity,

1. The rapidly increasing rotation by centrifugal action threw off sections of the outer material, which, through increased speed and pressure, developed intense heat, becoming incandescent and luminous, revolving balls of fire. Meantime,

2. The greater mass of condensing matter formed an immense globe in the midst of these revolving fragments, which became then the planetary system.

3. In the course of ages, the smaller portions of deliquidated matter, by radiating their heat into space, became so cooled that a crust formed on the exterior part of the globe, and solid matter, as we now term it, appeared on the earth, as testified by the igneous rocks, etc.

4. The continuance of these conditions for immense periods of time caused a contraction as well as cooling of the crust and a shrinking of the shell. Geologic changes took place. Vast bodies of water were condensed upon the face of the globe, and the operation of heat and cold, upheaval and depression during ages, produced at length a soil upon its surface, in which protoplasmic vitality first manifested itself in the lowest conditions of vegetable life.

STATEMENT OF THE WORD.

The Scriptures declare the first condition of the earth to be: without form and void, having no solid matter. Chaos and darkness was the appearance of the confusion, and the spirit of God moved upon the appearance of the fluid; and

1. God said, Let there be light, and there was light.

2. Let there be a firmament in the midst of the fluids.

3. Let the waters under the heavens be gathered into one place, and let the dry land appear.

4. Let the waters under the heavens be gathered into one place, and let dry land appear, and let the earth bring forth grass and herb, yielding seed after his kind. And it was so.

5. The luminosity of the igneous condition of the earth ceasing as the outer crust solidified, and the great masses of heavy carboniferous vapors, then clouding the surface, being slowly absorbed by the growing plants and vegetable life upon it, the sun appears for the first time, as pouring forth its flood of light from a central mass. In like manner, the smaller portions that had been detached from the center and revolved around it, as well as the greater ones, all became exteriorly cold and solidified. Receiving the light of the sun, they reflected it back upon the earth. So appeared first the phases of the moon and planets.

6. The motion of these two bodies—earth and moon—revolving around the central sun constituted the procession of the equinoxes and the different seasons of summer and winter.

7. The procession of these seasons, and the constantly decreasing heat, together with extended vegetable growth, caused the evolution of higher types of life. The zoöphytes and organic forms of moving things develop. The waters of the tropical heats bring forth innumerable hosts of primary existence, insects that form immense beds of solid rock. And, the scale of life still advancing, next,

8. Winged creatures are discovered in the geologic remains—strange, intermediate forms, suited to both water and air; finally, true birds and fowls are found perfected. The climatic conditions also vary and tend toward crushing out one series of existences and bringing in new, each of more complex organization; thus,

9. With the progress of life, the prepared food and adaptation of environment, metamorphic processes go on, in which, by the survival of the fittest, in natural selection, the higher types of the vertebrates begin to appear and ascend to the mammalia, beasts and cattle after their kind are evolved.*

10. All the paleontological indications show us that after this series, so evolved, first appears the animal form, as walking erect and with fully completed cranial expansion. Thus the chimpanzee rounds up the animal development, and in the gorilla is first established a true type of animal man, the germ form of what, by long ages of natural selection and survival of the fittest, brings us finally to the troglodyte, or savage man. This one we find dwelling in caves, gnawing the bones of the beasts he has destroyed. Capable of overcoming all these, by nearly equal strength and superior cunning, he proves himself their conqueror and so superior to them. Through his prehensile faculty being able to construct shelter for himself he was able to withstand those extremes of climate which proved fatal to races of equally and more robust animals; but,

5. Let there be lights in the firmament of heaven, to divide the day from the night. And God made two great lights: the greater light to rule the day, and the lesser light to rule the night. He made the stars also; and He said:

6. Let them be for signs and seasons, for days and for years.

7. Let the waters bring forth abundantly the moving thing, that that hath life.

8. The fowl that may fly above the earth in the open firmament of heaven.

9. Let the earth bring forth the living creatures after their kind; the creeping thing after his kind; cattle and beasts after their kind, God made.†

10. And God said: Let us make a man in our image, and resembling us, and let them have dominion over all the earth; so God created man in His own image, male and female created He them, to have dominion over the fowls of the air and beasts of the field.

* That "evolved" means produced from a previous germ under a type law, as a physical necessity. Hence we find the ascending scale of life a steady progress, from mollusk up to man.

† That "made" means produced under a law, for the terms are used correlatively in the Word. Thus, Gen. v. 24: "God said, let the earth bring forth;" v. 25: "And God made the beasts of the earth."

11. While the remains of the savage man of this period indicate little beyond physical function and animal dominion, there are tokens that, in the course of ages, he had evidently risen in the scale. *Sometime and somehow* he gained a step on the evolution, so that mentality is developed; not merely observation and comparison, but reflection and higher reason, for,

12. On personal intercourse, speech seems to have been developed, and with that the beginning of lower arts. The progress of civilization asserts itself; with the discovery of fire, cooking of food and culinary operations manifest themselves.

13. With such advance, family relations begin to be established; tribal associations branch out of them. Through the claims of marital relations and the dependencies upon them in family and children, as we find with the lake-dwellers, homes and families become universal.

14. With such progress of body and mind, ethical considerations are sure to develop. Modesty grows out of convenience to it. We find needles among the remains of the lake-dwellers, which indicates that they sewed the skins of beasts together for garments; from that steady evolution we trace the development of man, mind and body, up through the stone age, the polished stone age, the bronze age, the iron age, until the prehistoric era is joined to history, and then evolution is so far complete.

11. And the Lord God breathed into man the breath of life, and man became a living mind.

12. And God brought the creatures to the man to see what he would call them; and whatever the man called them, that was the name of them.

13. And God made a woman and brought her to the man, and Adam said, . . . Therefore shall a man leave his father and mother and cleave unto his wife, and they shall be one flesh.

14. And the Lord God made coats of skins unto Adam and his wife, and He clothed them.

Now, without any discussion of, or attempting to reconcile, these accounts, I would like to remark upon the above parallel.

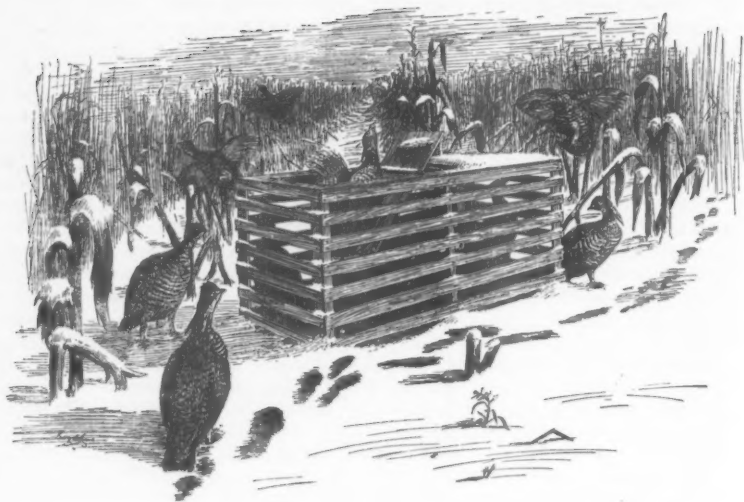
It must be remembered that these two accounts are reading in exactly opposite ways—the one, through scientific research, reading backward; the other, by revealed truth, declaring forward. Where one (with Hoeckle) reads “necessity,” the other simply affirms, “God said.” Now, are these inconsistent? “Necessity” is but a name; it means nothing. As a fact, it is only “God” spelt another way. The idea of law compels the thought of a lawgiver, and no reasoning man can deny it.

There are three great gaps in the naturalist statement of creation, frankly admitted by every liberal-minded evolutionist: *all of just handlike*

1. The origin of life, which required a given germ.
2. A species to link the quadrumanæ with man, which is not found.
3. The beginning of mind as a reasoning intellect, distinct from animal intelligence. Accept the statement of the Word, and these gaps are closed. A divine will and law steps in to work out the result, and the evolution is rendered harmonious.

On the other hand, reject the evolution theory, and the literalist interpreting the Word and its statement will find his difficulty insurmountable. Without the evolution of the natural man and the selection of one as a type form, into whom was directly infused of Divine gift a mind and soul, as the head of a new, spiritual race—he can find no harmony in the revealed record—he can discover in Genesis i. and ii. only two conflicting accounts.

In short, understand evolution as the backward reading of Divine truth, a present God of Almighty power, not leaving Himself without a witness, but filling all in all—by whom, even yet, all things consist—and we find no contradiction between the accounts. The one affirms *from whom* all comes, but not *how*; the other declares fully how all things are; blend them, and reason rejoices in the truth.



THE PRAIRIE-HEN AND ITS ENEMIES.

BY STODDARD GOODHUE.

WITH the possible exception of the turkey, the most picturesque of American game birds are those species of grouse that frequent the open country. Of these, the commonest and best known is the pinnated grouse or prairie-hen. This interesting fowl once inhabited the open lands of our eastern states, but it is now scarcely to be found east of the Mississippi valley, and even there its ranks are thinning. Unless protective legislation in its behalf can be made more effectual in future, it is to be feared that the tide of civilization that has swept the prairie-hen from the Hudson to the Mississippi in half a century will ultimately sweep it from the earth. It seems a pity that such a fate should threaten so unique and interesting a bird, more especially since the prairie-hen, though refusing to be domesticated, does not shun, but rather courts the society of man. Civilization has in many ways befriended him, increasing his food supply and decreasing the number of his enemies. But, in the long run, man has proved a worse enemy

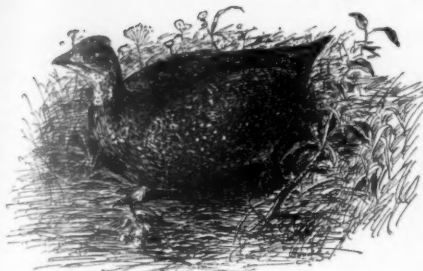
than those he supplanted; and if the grouse is finally exterminated, it will be chiefly through the same cupidity and lack of foresight that have led to the extinction of the bison and the destruction of our forests.

Other enemies must, however, be credited with a share of the work of destruction. Indeed, the poor bird runs a gauntlet of foes from the moment it leaves the shell. One can best appreciate this practical struggle for existence by following the prairie-hen through the changes of a year. We shall find that a new set of dangers confronts it with each season's change.

With the first



HEAD OF PRAIRIE-HEN.



AT HOME IN SUMMER.

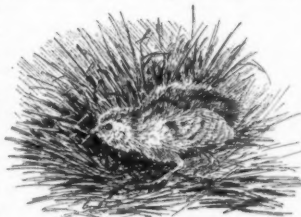
intimations of approaching spring, the prairie-hens disband the large flocks in which they have associated during the winter, and scatter to the localities where they are to spend the summer. Here companies of from a score to often a hundred assemble at day-break each morning during the spring time, on some prairie knoll, to indulge in a most remarkable performance, which might with equal propriety be styled a love-dance or a tournament. The cocks strut about, with head and tail erect, and with drooping wings, like turkey gobblers. Meeting one another, they pause, bow, gesticulate, pirouette, and finally, selecting their antagonists, come together in fierce duels, after the manner of barnyard fowls. Some hard knocks are given and received, and a few feathers or drops of blood may be lost, but on the whole, the duels are distinctly of the modern type. Throughout the affair, when not too actively battling, each cock flaunts in the air the long, stiff feathers which ornament the sides of his throat like lesser wings, and distends the great air-sacs that lie beneath them till he seems to wear an orange on each side of his neck. Aided by these air-sacs, the cocks emit a low-toned but strangely penetrating "booming" sound, which, coming from many throats, makes the air resonant, and well befits the martial scene. One may closely imi-

tate this sound by closing his lips tightly, and attempting to pronounce the syllable "boom," very slowly, through his nose. The resulting sound seems about as loud to the producer as would the utterance of the grouse. But a unique feature of the bird's performance is the fact that it seems to have so little volume if heard near at hand, yet sounds almost as loud at a distance of half a mile.

The tournament continues for perhaps an hour, or until the fortunes of war have marked the victors. Meanwhile the hens, over whom the mimic war has raged, stand idly in the background, viewing with seeming interest the acts of gallantry incited by their charms.

As a lover, the grouse is picturesque, gallant, admirable. As a husband, he is

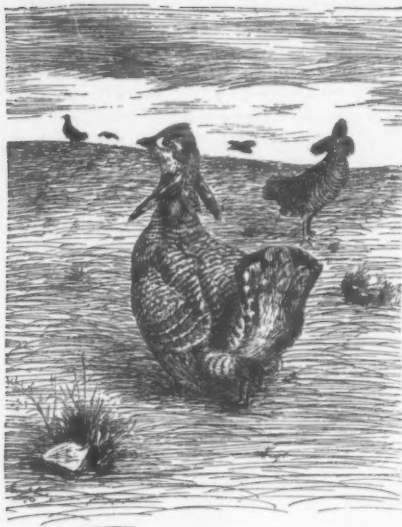
reprobate to a degree. No sooner have his spouses—for he is a rank polygamist—completed their complement of eggs, than he deserts them altogether for the season, becoming a recluse and an aimless wanderer. All interest centers now on the brooding mother-bird, upon whom devolve the duties of the family. Far out on the open prairie, or perchance in a less remote grassy slough, or yet again in a fence-corner close by the field of the farmer, she has selected a nesting-place, scratched a little hollow in the earth, pressed into



A BUNDLE OF POSSIBILITIES.



THE INEVITABLE END.



GATHERING FOR THE TOURNAMENT.

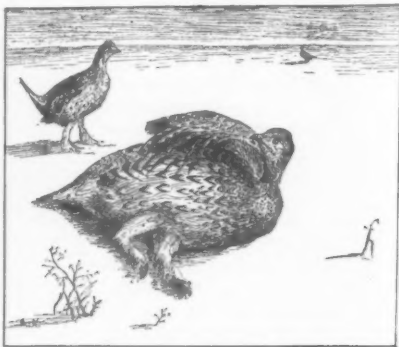
it a few blades of grass, and deposited her half-score or more of eggs. For several weeks she must sit there in loneliness, only stealing away, now and again, long enough to secure necessary morsels of food. A perilous task it is, too, as well as a lonely one. By day, the searching eye of a passing hawk may find her out to her peril; and at night dangers are all about her, for the weasel lopes through the long grass in search of just such a victim, the coyote would find her a morsel greatly to his taste, and even a wandering grimal-kin may pounce upon her as she sleeps.

But, fortunately, the prairie-hen's mottled plumage harmonizes marvellously with the loam and dead grass about her, shielding her from the eye; and, while she sets, no odor emanates from her body. At other times her effluvium is very penetrating; a hunting dog might scent her up-wind a hundred yards, or twice or thrice that. But while she broods those precious eggs, wolf, weasel, or cat, or the keenest-nosed setter, might pass her almost within touching distance, without suspecting her presence. Thus doubly shielded from the keen senses of her enemies, she stands a fair chance of going through the ordeal of nidification in safety, to be rewarded at last by the sound of

little bills grating against the prison shells, and the yet more delightful peep of liberated fledglings.

Dainty little balls of down these fledglings are, running about, as do all the gallinaceæ, almost before the shells are off their backs, and sprouting great wing quills, to carry them short flights if need be, long before feathers supplant down on any other part of their bodies. The same perils that were about the mother-bird now menace the chicks, but in a far greater measure. It is a fortunate family if some of its members are not carried off by the foes before maturity. And worse than any of the feathered or furred enemies are the drenching rains that visit the prairie region at this season. The young prairie-hens are very susceptible to the wet, and thousands of them perish in the June freshets. Many a mother-bird finds her brood decimated in this way. But the instinct of maternity is still strong upon her; so, after a few days of disconsolate wandering and unresponsive clucking, she locates a new nest, deposits another set of eggs, and begins afresh the long, tedious waiting. Even a second time, should misfortune overtake her brood, the prairie-hen will repeat this process. Often, late in the fall, when most grouse of the season are well-grown, I have come upon a hen leading a brood of but a few weeks' growth. Small chance they have, it is to be feared, of getting through the winter alive; but they speak volumes for the courage and persistency of the mother.

If the young prairie-hen escapes the birds, and beasts, and floods, he grows rapidly, and each week finds him better

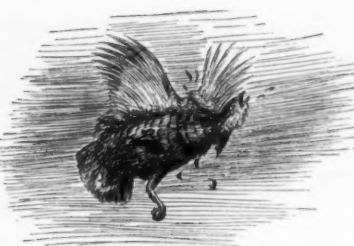


SHARP-TAILED GROUSE.

able to care for himself. By the middle of September he is, perhaps, two-thirds grown, and a lusty bird he is, strong of foot and of wing, and well fitted to escape his old enemies. But now a new and more terrible danger threatens him. The "closed season," during which the law gave him protection out of regard for his callowness, has expired, and the sportsman is abroad. Tooth and talon might be eluded, but there is small chance of escape from the murderous hail of the breech-loader.

The method of hunting the prairie-chicken deserves to be especially noticed. However abundant the game may be, it is almost useless to pursue it in the early autumn without the aid of a trained hunting dog. Even though the stubble of the wheat-fields to which the birds resort, at this season is but six or eight inches high, they crouch and skulk in it so successfully as to elude detection, and they run so rapidly as to easily keep out of the path of anyone who might otherwise stumble upon them. Early in the season, before they have been alarmed by contact with the sportsman, they will crouch in the grass or stubble and allow a man to pass within a few yards of them. Thus a hunter without a dog might pass within easy range of scores of chickens, without so much as seeing one. So only the novice thinks of pursuing them in this way.

The experienced sportsman takes into the field a trained setter or pointer, and the entire aspect of the case is changed. It is a pretty sight to see the fleet-footed animals beating back and forth across a field at a swift gallop, depending altogether upon their noses, and covering securely, with a favorable wind, an area of perhaps a quarter of a mile on either side of the path of the sportsman. If the odor of game is detected, the dog becomes rigid as a statue, and so remains till his master has reached his side, when he steals forward cautiously until the chicken flushes. At the sound of the gun, he will, if properly trained, either drop to the ground or stand perfectly still



HARD-HIT.

until ordered to go on.

Until the grouse have been much hunted, they do not all fly at once when thus pursued, the sound of a gun often only making them crouch more closely. So, advancing cautiously, guided by the nose of the dog, the sportsman may flush them singly or in groups of two or three, thus sometimes bagging almost the entire covey. To most sportsmen there is a great fascination in that period of expectancy when the dog is slowly creeping upon game that cannot be seen however closely the field is scrutinized, yet which may at any moment hurtle up, with nerve-trying whirr, perhaps almost from under one's feet. But the sportsman who values his game in proportion to the skill required in securing it will find the grouse a much worthier object of his prowess a month or two later, when it has become more wary, and, having gained full size

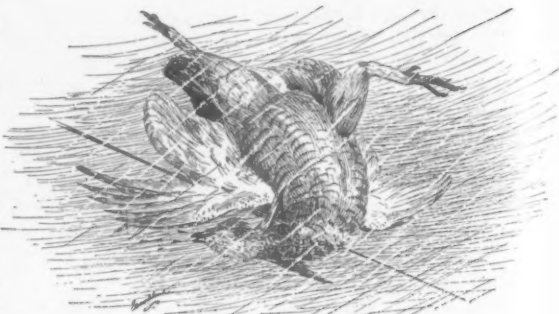


POT-HUNTING.

and strength, has ceased to be an easy target for tyros.

With the first fall of snow the chickens desert the wheat stubble for the corn-fields, and, gathering in large "packs," become very wary. The sportsman now gives them over for the season, but the farmer-boy and the pot-hunter take them in hand, and, by building blinds in the fields or in fence-corners where the grouse come to roost, continue the slaughter.

Nor is this all. The winters of the region inhabited by the prairie-hen are extremely inclement. Storm after storm deepens the snow, and makes the food supply more and more scarce. Starvation stares the poor bird in the face. Escaping this, he will very likely freeze to death. And now the last straw is added by the market-hunter, who places in the corn-field a great harmless-looking cage, with an ear of corn fastened alluringly on its top. The prairie-hen has no great



A MID-AIR TRAGEDY.

amount of sagacity, and even the fatal experience of many companions does not teach him that the tempting bait is securely fastened to a deadly trap-door, to alight on which is to invite a certain fate.

This nefarious device, used in defiance of law and humanity, removes each winter thousands of the prairie-hens that had proved most worthy to survive in the struggle for existence. To it, more than to any other single cause, is due the steady decline in numbers from year to year of the sturdiest and most picturesque game bird of our country. But comment is useless, for the market-hunter is far beyond the reach of mere words. Unfortunately, owing to the nature of his calling, laws usually affect him quite as little.

It may appear that the prairie-hen's winter prospect is hardly an alluring one. It contains, however, one bright hope. This is the possibility that some belated farmer may fail to gather all of his corn crop before the deep snows come. In that event, the corn must be left to the tender mercies of the prairie-hens till the spring-time. Where a large field has thus been left, as sometimes happens, the grouse gather from miles around, as if summoned to a feast, associating in "packs" of many thousands. So many eyes are here on guard that the hunter cannot hope to approach them, and food is so abundant that the trap offers little temptation. A few snowy owls are usually attracted to the vicinity, and sometimes a marsh hawk, emboldened by hunger, makes a successful



A WHITE OWL OF DAKOTA AND ITS PREY.



A TOURNAMENT IN PROGRESS.

onslaught, though the quarry is much heavier than himself. But owl and hawk are a few enemies against thousands, and can at most pick up now and then a straggler; and the main army of prairie-hens under these circumstances might hope to come through the winter gloriously, were it not for the terrible storms that from time to time sweep over the prairies. The prairie-hen is a hardy fel-

low, and even a three days' blizzard, with the mercury far below zero, will not outmaster him, unless he chances to be snowed under, and covered with a crust that he cannot penetrate. But this sometimes happens, and then there is little prospect of escape, for thaws

seldom come in this region during the winter. I have seen storms where, I had reason to believe, thousands of prairie-hens perished in this way.

To a reasoning mortal, it seems strange that a bird gifted with wings that will carry it fifty or sixty miles an hour should remain over winter in a climate offering so few attractions. But, of course, the grouse is not responsible for his instincts. How should he know that balmy skies are southward? Even if he did know it, however, perhaps he would not care to court them, for he is clothed for winter, and seems to love to buffet with the storm.

It should be said, however, that though the prairie-hen is always classed as a permanent resident in the region he inhabits, yet he is strictly speaking in some degree a migrant. To the resident of the western village, it is a familiar sight in



HEAD OF SAGE GROUSE.



HEAD OF SHARP-TAIL GROUSE.



A CLOSE CALL.

the morning or evening of spring and autumn days, to see large flocks of grouse passing over at no great height; and it is noted that the autumnal flights are always southward, the vernal to the north. It would appear that the great body of grouse shift their habitat twice each year, and it may be doubted whether any individuals spend an entire season in the same region. The summer phalanx of any particular latitude shifts a few hundred miles to the south for the winter, to be replaced by coteries that summer still further to the north. Of late years another danger has threatened the prairie-hen through this habit. It chanced that telegraph and telephone wires are strung at about the height at which the grouse usually fly, and many a bird whizzing through space in the gloaming or before a storm, meets his death in mid-air through contact with one of these silent and unseen foes. Barbed-wire fences similarly menace birds that are flying near the ground in passing from one field to another. I doubt not the surviving grouse regard these deadly wires as yet another device invented by

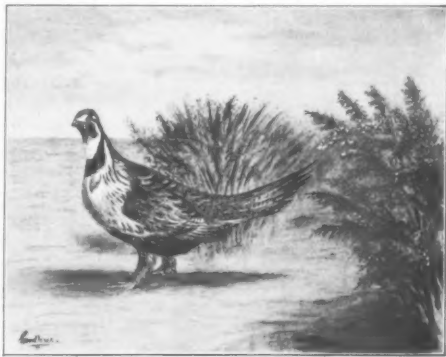
their arch-enemy, man, for their destruction.

The name prairie-chicken, by which the pinnated grouse is universally known in the west, is given also to an allied species, the prairie sharp-tailed grouse. In the Missouri region, and northward, the two birds meet and associate, and are colloquially regarded as varieties of one species. This idea is fostered by the fact that they interbreed, producing hybrids of all gradations of color. The habits of the two are very similar—even to the love-dance and its “booming” accompaniment

—but the sharp-tail is a yet hardier bird than his congener. Clothed for winter to his toes, he loves to remain throughout the season in regions too inhospitable even for so hardy a fellow as his pinnated cousin. His habitat is more restricted than that of the other, and his nature is even more wild and unyielding. If the prophesy that foretells the extermination of these two birds is unhappily fulfilled, the prairie will lose its most characteristic feathered residents.

The other member of the group of open country grouse, is the giant sage-hen. He is a resident of the true plains rather than of the prairies, being confined almost exclusively to the sage barrens of the far west. His habits are otherwise similar to those of his congeners; but because of his greater size and more restricted habitat he is even more surely threatened with extermination.

Throughout this article I have used the name “prairie-hen” as if it denoted a single species of bird. Such, probably, is not really the case. Specimens of “pinnated grouse” from different regions vary somewhat in appear-



DISTURBED.

ance. Market dealers have long noted that Texas grouse are smaller in size and lighter in color than northern ones. Some ornithologists thought the Texas breed entitled to rank as a geographical variety. More recently they pronounce it a distinct species, naming it the lesser prairie-hen. It is now thought that the grouse formerly abundant throughout the eastern states, and still represented by a few specimens on Martha's Vineyard, is also specifically distinct. The name "heath-hen" is given this species.

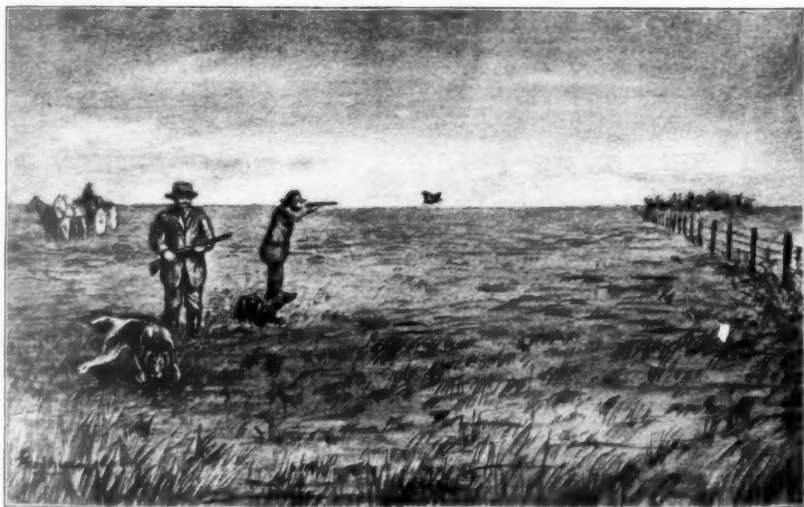
Within the present year yet another division has been made in the ranks of the pinnated grouse, a fourth species having been determined under title of "southern prairie-hen." The differences shown by these four species, however, are not such as to appeal very strongly to the casual observer. The average sportsman would at sight pronounce any specimen



SHARP-TAILED GROUSE ON THE WING.

of either species a "prairie-chicken," without suspecting that all were not of one "kind." And in this judgment he would be no more undiscerning than our earlier ornithologists. The distinctive markings, however, are plainly visible and when once pointed out will not be overlooked again.

The habits of the various prairie-hens are very similar notwithstanding their diversity of classification, allowance being made for the differences in the climates of the widely separated regions over which the genus is scattered. It is obvious that some comments of the present article, relative to winter habits of the grouse, could only be applicable to the more northerly species, the prairie-hen proper. With this exception, what is said applies to all alike. The species represented pictorially are the prairie-hen and the lesser prairie-hen.



THE OPENING OF THE SEASON.



A MIDSUMMER IDYL

BY CALISTA HALSEY PATCHIN.

It is a day of shadeless, unalterable heat. One cannot escape or ignore it. The only thing to do is to meet it—to go out into it—to rejoice in its depth of color, in its hours of flooded light, in its passion pulse of growth. Lie down on the grass. Lying there the cool secrets of hidden springs will reveal themselves to you. The strength of the gray rock that pillows you will thrill you through and through. If you lie still enough and long enough, you will come to hear the silent forces at work in the dead dark below you. You will hear the slow, sure setting together of crystals—the steady, slow upheaval of great strata of the lower earth. Is it because the magnetic currents set to the north and south, that you feel strong, and cool and transfused with subtle rest? You lie as in a dream. What matters it now that the heavens are filled with fervent heat; that a devouring flame has laid waste the wide white spaces of the sky?

The elm tree that has grown up, shouldering the rock a little aside as it grew—I must tell you how they were friends of old—this Rock and Tree. To go back to the beginning—the very beginning of beginnings—this Rock belonged to the primary stratum—to one of the very first families. You can imagine with what a patrician pride the Rock looked down on everything around it. Everything, from spring beauties and trailing arbutus that made the first reconnaissance in the spring, to the golden rod, that led a ragged regiment of weeds

across the lonely road in late September, everything was so hopelessly plebeian, so young, so green. It was hardly to be expected that a granite boulder, with the secrets of the creation week in its gray heart, should have anything in common with flowers that flaunted out their red and blue life in one summer. Once some trees were cut away, and far down in the valley the Rock saw the sycamores, blanched and ghastly, standing like lepers by the silent water-courses, and for the first time it was thrilled with the sense of kinship. They were old; they knew; they endured. Knowing, too, as it did, that the same springs that fed the sycamores quickened to life the green ivy that one fateful summer lived by the Rock. Oh, that summer! That Ivy!

You may be sure the Rock did not tell me this over-true tale. It was told me by a great, green Fern, who rocked herself to and fro as she told me. Now, this was the traditional ivy that clings to the traditional oak, and it was doubtless only because no oaks grew on that hillside that she made tendril-like advances to the Rock, which I think at first was hardly aware of her.

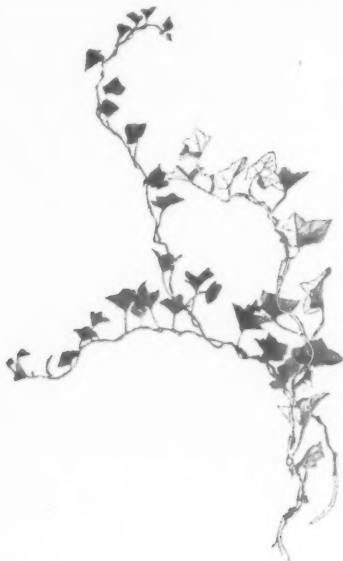
You see all green and growing things had kept their distance. Only a few lichens on its north side did the Rock tolerate—and it was proud of those as some people are proud of gray hair or an Austrian lip. But nothing like the daring of the Ivy had ever been known before, and all the wild things of the woods held their breath to see what would happen. She was not very exacting. She asked only to lavish herself on someone



else, and so, not finding herself repulsed, she clung closer to the Rock, which hardly noticed the clinging touches on its north side. Anyone but the Ivy would have known better than to come up on the north side at all—a wiser ivy even would have approached the Rock on its sunny south side, and then, perhaps, this story need never have been written. But this was only a foolish, loving ivy, who did not reason very much or very well, but only loved, and clung closer as the days went by, and by and by, oh, foolish, loving Ivy! flung herself prone on the breast of the Rock. It was nothing to her that she received nothing for all her trouble. If true love is daring, true love is also humble, and gives without grudging. It was very hard to make the Ivy understand that her love was not wanted—that her sweetness was suffocation. It was almost impossible to say all this without hurting her to the death, and the first families are too chivalrous for that. And so at last, hints and indifference availing nothing, the Rock swore a mighty oath to be rid of her. And that night Vulcan forged a special thunder-bolt—the first families have such influence. The next night there was a great storm, and in the morning the Rock lay there, rent and riven in twain. But it cared nothing at all for that, since in that

hot, passionate breath of the lightning, the Ivy had perished, root and branch.

Many and many a summer after that, so long after that everybody who knew the sad fate of the Ivy was dead and gone—the Elm Tree grew up, wiser in her generation, on the sunny south side of the Rock. Nobody remembered anything about the Ivy but the ferns, and they kept their own counsel, believing from the first in the Elm Tree's ability to take care of herself. And so she did. I dare say it was mostly because she grew up straight and beautiful and willful, that the rock, from looking at her with a grim surprise, grew proud of her and gloried in her grace and her beauty. There was no one like her in all the forest, nor ever would be. And so pride grew into love, and love into passionate longing. And she—well, she loved the Rock in her way, but her way was not the Ivy's way. For her the Rock kept crystal clear the spring that kept her alive and for all answer she lifted herself farther away, and up in the blue air her whispering leaves learned a new language, that the Rock could not understand. But there was one thing she did. As she grew, she lifted the Rock with her, till the rift the lightning had made was quite closed. Should you know that it had been broken if the Walking Fern had not told me, and I had not told you?





SALMON CASTS.

BY HENRY ARTHUR HERBERT OF MUCKROSS.

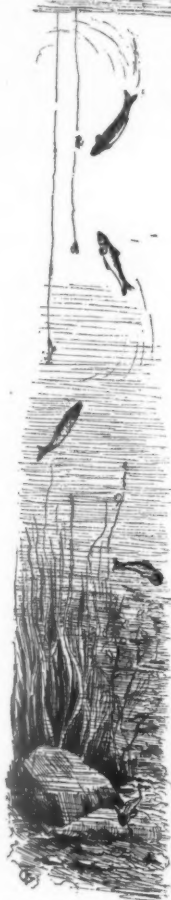
ONLY northern latitudes are privileged to claim the salmon.

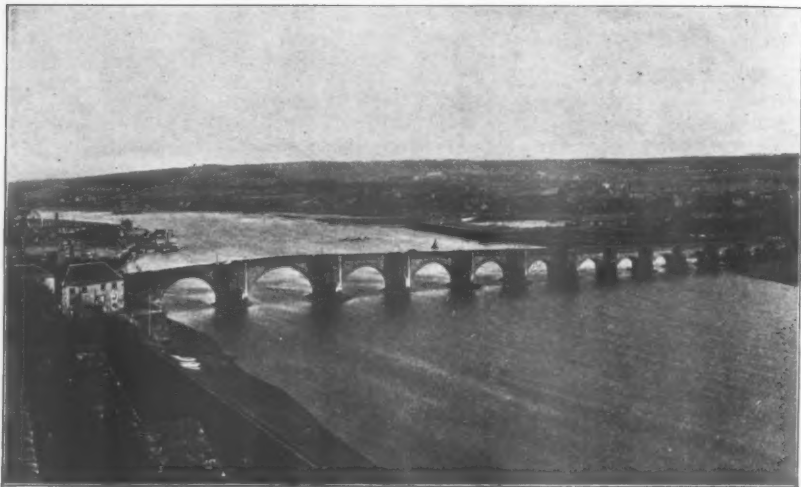
In Europe they are most common in the British Isles, Denmark, Norway and northern Russia, and on this continent the salmon frequent the rivers of Maine, Newfoundland and the eastern coast of Canada, the Yukon, the Columbia and other rivers flowing into the northern Pacific. The habits of the fish are everywhere practically the same, though the seasons when it attains perfection for the market and for the angler differ locally. To the European sportsman the British Isles and Norway are the favorite fishing grounds, as the east coast of the United States and Canada is with us.

The Scandinavian rivers of note all flow into the North and Arctic seas, the most famous being the Romsdal, Stordals, Namsen, Alten, Pusvik and Tana. Most, if not all of these rivers are rented by English anglers, the fishing beginning about the end of May and terminating in August. The length of the season depends on the depth of the winter's snowfall, which keeps the rivers full as the summer sun accelerates the thaw. The proprietors of the land through which the rivers flow are the riparian owners and the red tape a fisherman has to endure in seeking a lease of fishing rights is peculiar: he must first interview the headsmen of the district in order to make a bargain. This being arranged the headsmen calls all the proprietors along the banks of the river to agree upon the terms, which are, generally, either a fixed rent in money or so many vogues (forty pounds) of salmon, each vogue being at a fixed value. The headsmen next apportion the rental according to the extent and excellence of each owner's portion of the stream.

Once a bargain is concluded the proprietors are most particular in living up to their contracts and virtually act as caretakers of the preserves. These contracts usually include a dwelling or "fishing box" on the most convenient part of the river, with supplies of milk, eggs, etc.; also the use of boats and the services of boatmen who are almost invariably good fishermen and expert gaffers. The government salmon laws are very stringent. The nets within a given distance of the mouth of the river can be used only three or four days per week, so that the fish may run up the rivers, and from 6 P.M. on Saturday to the same hour upon Sunday even rod or pole-fishing is not permitted.

On most of the rivers the angler has to fish from a boat, generally casting with his rod the upper portion of the pools, while





THE SCENE OF THE NET FISHERIES AT BERWICK.

he trolls, or harls, the lower part. The trolling consists in placing two rods on each side of the boat, one with a spoon or phantom and the other with a fly. The reason for this proceeding is that the rivers are too wide to cover with a cast of the fly. The flies used in Norway are very large and gaudy, much more so than anywhere else where salmon fishing is practiced. The boatmen are very expert and can force their narrow boats up almost any rapid or stream. The fishing is carried on mainly at night, as in the northern portions of Norway and Russia the midnight sun shines during two months of the year. In former years immense takes of salmon were captured by the rod, three and four thousand pounds of fish being a common total at the end of a season. The best record made by any two rods is credited to the late Duke of Roxburghe, who, with his father, landed 1400 pounds of fish in one night.

In the United States the fishing privileges on the salmon rivers are rented by many individuals and clubs. The Canadian government, as a rule, owns all the rivers in the Dominion. On the south of the St. Lawrence the best rivers are the Caspapedia, Restigouche, Nipisiquit, Misamichi, Matapediac and Kennebec; and the Saguenay, Godbou, Maine and Natashquan on the north. The smaller

streams of Newfoundland, too, abound with small salmon. The flies used are much the same in many respects as the Norwegian and Scottish, but considerably smaller in size, also, the tackle is lighter. The anglers use birch canoes, dextrously handled by Indian and half-breed boatmen, and usually build their own camps, save where their action in this regard has been anticipated by that of some sporting club.

The Yukon and other rivers flowing into the Pacific are so rich in salmon that they furnish the markets of the world with canned fish. The stories told of the fabulous number of salmon that ascend these rivers are almost incredible, and yet tons upon tons of fish are found in the shallows, or die on their return from the spawning ground. The salmon in these rivers have never been known to rise to or take any known description of fly, but have been captured by the spoon bait or spinners. The cannery and natives catch them in large drag-nets and fish-wheels, these latter being placed in certain parts of the rapids and in falls where the fish run up in countless shoals. The wheel scoops them up into a trough which connects with the canning factories.

The habits of the salmon are pretty generally known, and the knowledge of them forms the foundation of all legislation for

his protection. The sea is his natural home and fattening ground. He ascends into fresh water simply to reproduce his species, and this accomplished he returns again to his "salty home." Every river has its own family, or tribe, of salmon, and even where two rivers run into the same estuary, it is seldom that the fish make a mistake, or run up any but their own stream. Each river has a different time for its fish to run up, and in the British Isles those salmon fisheries are the most valuable where the fish ascend earliest in the season. My experience has shown me that rivers flowing from large lakes are those in which the salmon first make their appearance in the spring. The only practical reason for this, to my mind is, that the temperature of the water is warmer than of rivers without such large reservoirs at their source, the latter being chiefly fed by springs off the high lands; and nature teaches the fish that there is a larger and safer area to hide in. For instance, take two Irish rivers, the Laune, and the Maine, which flow into the Atlantic, within a mile of each other. The Laune is fed by the Killarney lakes, and the salmon ascend its waters in January, the legal period for the net fisheries dating from the 16th of January to July. In the Maine hardly a

fish runs before the month of May, and they continue running until October. This is only a single instance, but I could quote many similar ones all over the salmon world.

The first rivers that are opened for fishing in the British Isles, are those in the south of Ireland in January, Scotland follows two weeks later, England and Wales coming last. Norwegian salmon begin to reach the market about the month of May, the southern rivers of that country being the first to send fish, as they clear themselves from ice.

The breeding time varies in the same way, the fish in some rivers being on the "reds," or spawning grounds, as early as October, others not until January or February. This applies to the British Isles rather than to this country or Norway. Salmon in the latter spawn much earlier; nature matures them sooner and drives them on the beds, so as to hasten the process of reproduction before "black frost" appears.

The perseverance of the salmon against seemingly insuperable difficulties in attaining their spawning grounds is remarkable. They have been found up the rivers a thousand miles from sea. They will jump almost perpendicular waterfalls and



SALMON POOL AT DRYBURGH.

stem the most rapid currents. In many places in the United Kingdom, the fishery commissioners have placed ladders to assist the fish, and also to open up new spawning grounds. A most remarkable instance of what can be done is to be seen in Ireland between Lough Mask and Lough Corrib. Some years ago a canal was built between these fine sheets of water, for the purpose of navigation. Owing to the fissures in the limestone bed, when the water was turned in, it was found impossible to retain a sufficient quantity. It was resolved to make it of some use, so the worst of the fissures were bridged over by large iron pipes three feet by two in diameter, and the experiment proved a great success, as the salmon run through these pipes to this day, and have stocked an immense area of new water.

The salmon were formerly so plentiful in parts of Scotland and Ireland that in some of the old indentures, or engagements of servants, a clause was inserted by the latter, stipulating that they should not be fed on salmon more than four times in any one week. Fancy such a luxury as salmon is in these days, being refused by the powdered "Jeemses" of England!

Salmon, when they first run, or ascend the rivers, early in the season, are called "spring fish" and weigh from ten to thirty pounds. These are the old fish of the preceding years returning up the rivers. The second "run" begins about June, and these fish are called "peel" in Ireland; "grilse" in Scotland; and "se-wenn" in Wales. They weigh from four to twelve pounds each, and are the smelts of the year before. In some rivers there is a third "run" of large fish known in Ireland as "blackberry;" in Scotland as "autumn," or "backend fish."

The "spring fish" afford the greatest sport as they are more lively and full of strength. How keenly I remember my first "spring fish!" Eight summers had not passed over my head. It had been my delight to practice trout fishing with my father's old keeper. Gradually I had learned to handle a small rod, and the promise of a salmon rod from my uncle, Mr. Charles Balfour, in case I should succeed in landing a salmon the first time I fished for one, fired me with ambition. One fine Saturday we started off with

an old retainer rowing the boat, and keeper Ross as my instructor. I had been given a holiday and would not have changed places with anyone, as I jumped into the boat, lunch and rod in hand. Glens Bay on Killarney, was our first essay. The breeze was excellent, and everything was propitious. Boy-like, I gave my opinion on the flies to be used, as though I were an old experienced hand, but pride hath a fall, and those I picked out did not seem to charm a single fish. "Mike," who was rowing, exclaimed, "Bedad, your honor, we'll try him with a 'fiery brown'" (the name of a favorite fly on those lakes). A few more casts, and a fish came up. With a jerk that would have pulled a whale out of the sea, I struck at him. A splutter followed, the fish disappeared and I was left lamenting, minus my "fiery brown" which remained in the fish's mouth. I still recall the agonized exclamation of the poor boatman: "Oh, your honor, you've lost a lovely creature fully fourteen pounds weight, what did ye ever try to pull it out of his mouth for when he had it swallowed?" Regrets were useless, and there was nothing for it but to try again, with various instructions how to behave when another "lovely creature" should flirt with my fly. A confiding salmon did appear, and I found myself suddenly tied to the fish and am not ashamed to confess, though I landed him eventually, that he played me a great deal more than I played him. My pride was only equalled by my jubilation when I received the promised rod—a rod that has since killed many thousand pounds weight of salmon, and accompanied me over many a mile of sea and river.

In fly fishing, a man's individuality comes to the front. There are few first-rate fishermen, in proportion to the number of proficient in various other sports. This arises from the fact that no matter how good a man's rod, how "killing" his selection of flies, how thorough his outfit, if he lack an intimate acquaintance with the habits of the fish he is seeking, the color of the water, and the size and color of the flies, he is at a loss, for knowledge of all these go to make the complete education of an angler, and to possess them he must have manipulated a rod from his youth up.

A friend of mine had been fishing on



POOL AND FISHING-BOAT AT ABBOTSFORD.

the Laune all day with no success, though the river was teeming with fish. I was coming from Killorglin to call for him on his way home. Jumping off the jaunting car I joined him. He was much disappointed at not having a single salmon to show me, for he was a good fisherman. Instead of reeling up his line he came along the bank towards me after having made a cast, with his rod over his shoulder, allowing his fly to trail over the pool. Suddenly he was jerked back by a salmon rising and taking firm hold of his fly. Soon he had the satisfaction of seeing him on the grass. He repeated this course of action, succeeded in killing one more fish, and raising another. This was an instance of successfully bringing a fly over the fish in an unorthodox manner, after every other known device had failed.

Every river has its own peculiarity both as to flies, size, mode of fishing, lay of fish, and clearness of water, and the man who is the quickest to see these points meets, as I have said, with the greatest success. In the river Tweed, Scotland, the movement of the fly is very slow, the fly is permitted to sink deep, and the point of the rod kept as near the water as possible. On the Laune the fly must be worked quickly on the top of the water, the point of the rod being kept well up in the air.

Anglers often boast that they can throw thirty or thirty-five yards of line. That is not the question. At what distance can a man throw a line and make the fly fish, which it will only do at a certain angle? All the long casting of line is useless till this result is attained. Men show off their casting at competitive matches, and have made most marvellous records, but how long could they continue to sustain such a strain? Could they do this under adverse circumstances of position or wind? The practical test is shown, after an angler has been fishing an hour or so with a heavy rod, by the amount of water he can really cover, and make his fly fish. This is a fair estimate of his abilities. There are but few who can throw overhead thirty yards of line, though considerably more water can be reached by using the underhand or Spey cast. A novice will find the mastering of a short cast far more profitable than trying to delude himself into the belief that because he has many yards off his reel he must of necessity be making use of it.

In Ireland it is sometimes the custom to fish with two flies on the casting line. This is a dangerous habit in salmon fishing and if practiced on any but lake water frequently loses fish, one or other of the

flies during the playing of the fish getting caught in rocks or roots. Yet it is not without its advantages. It enables the angler to fish the water closer, and presents a variety of choice to the prey. I have twice killed two fish at once. The first time was on the Laune in Killarney, when a fourteen-pounder took my tail fly, and a large five-pound sea-trout took the dropper. Strange as it may appear, they gave me very little trouble to capture, as one must have worked against the other. When I landed them, the lesser fish of the two—the trout—was drowned and quite dead. The other occasion was in Norway.

It often happens that a salmon is caught foul in the back or some other part of his body. This is generally caused by the fish on rising to the fly missing and rolling over it. Fishing once on the Laune in the "Paulnahallah Pool," a salmon rose,—the next moment his furious rush told me he was well hooked. Far quicker than I can relate, seventy yards of line were off my reel, and I was running for bare life after him down the river. Out of the pool he went, and before I could get a turn out of him he dashed at the next rapid, which was rough water for about half a mile. An hour passed; a mile and a half of the river lay between

me and my starting point, when for the first time I saw my salmon, which up to that moment I felt certain was the "biggest fish" that had ever been hooked on the river. The murder was out,—he was hooked by the tail, which gave him complete mastery for a time.

An amusing incident occurred that day in connection with my keeper. I had handed him my rod in order to take a rest and he was quietly fishing, trying to induce a good salmon I had moved to rise to a change of fly. An adjacent browsing cow had in the meantime fed up behind him, when, in an instant, the fly as it was cast back, caught in the animal's neck, and then ensued the strange and ridiculous sight of a man "playing" a cow. Here, there, all over the field, went the cow, the line running out, and French doing his best to keep up, fearing that he would lose the line or break the rod, either of which dilemmas he would not have cared to confront. Fearing that French might be all day "killing" his cow, I went to his rescue, caught hold of the line and broke it off, leaving the fly in the animal's flesh. I trust that if that beast afterwards went to the market to be converted into steaks, my hook did not choke some hasty diner.

The fishing in Scotland is in some re-



THE TWEED AT KELSO BRIDGE.



THE POOL NEAR NORHAM CASTLE.

spects better than in Ireland. The fisheries are more exclusive, the preservation stricter, and the estates, in proportion to the size of the country, more extensive. The deer forests also, which occupy the largest portion of the north, exclude, with the exception of a few privileged individuals, all seekers of the salmon, and even the humble trout fisher is kept at bay. The Tay, the Don, and the Tweed are the most famous of Scottish salmon rivers, in the front rank of which the Tweed holds her own, and upon its pools I have spent hours of excitement and pleasure such as are known only to those who have experienced the uncertainties of angling.

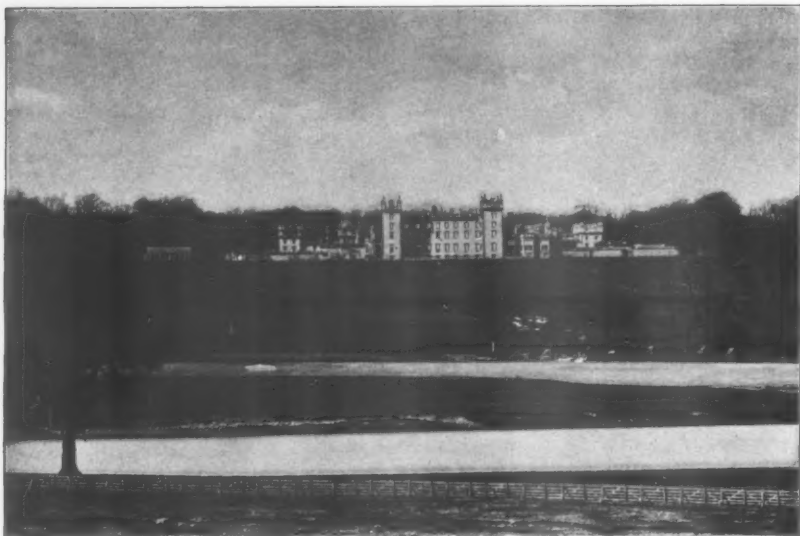
Can anything in an angler's experience be more romantic than killing a salmon under the shadows of Melrose Abbey, or hooking a fish at the foot of the old ruined walls of Teviot castle? The Tweed is one of the most prolific streams in the United Kingdom. The net fisheries at its mouth are extremely valuable, and there is not a yard of the river where salmon lie that does not command a high rent from rod fishers. The most famous casts and the best adapted for fly-fishing are owned by the Duke of Roxburghe, and though he lets a considerable portion, those which lie inside the demesne of

Floors remain in his own hands. This section of the river lies between Kelso bridge and Makerston.

It would be hard to find a more beautiful and historic stretch of water than that flowing past old Teviot towers, overlooked by the present magnificent castle of Floors. The ancient abbey, close to Kelso bridge, and Teviot fortress frowning from its strong position, recall both the calm and the turbulence of feudal times.

It is difficult to name all the famous casts on this portion of the river, but the Garden Wall, the Put, and the Coach Wind take the palm in the lower water, whilst the Shot Pool and Black Stone are good representatives of the upper. The central portion of the water was generally reserved for his grace's fishing and the entertainment of his more special friends. In low water, and in a few of the pools certain casts can be fished by wading, for which large wading boots are used, but in general, the river is fished from small flat-bottomed square-stern boats, peculiarly adapted both for the purpose of fishing and for being hauled by a long tow-line up the rapids.

The Shot Pool is the crack pool. Near it is the small house where the rods, tackling, etc., are kept, and from this point



THE "COACH WIND" AT FLOORS.

the fisherman starts for his day's sport on the upper water. The left bank of the Shot Pool is very high, and wooded. On it are placed seats from whence the ladies of the family and visitors can view the piscator, and form opinions as to his skill. The pool itself is fully three hundred yards long, and when the river is stocked with fish, affords sufficient water to satisfy the most greedy angler. Captain Charles Balfour and I had the privilege of a day's fishing at Floors castle and under the escort of Tom Noble, an old retainer. We fished with one rod, taking turns of about twenty minutes each. We landed twelve salmon weighing from twelve to twenty-seven pounds each. It was in the late autumn when days were closing early, and we did not begin to fish before 10:30 A.M. There is one spot in this pool which is a certain rise. If a sportsman finds his boat opposite a hanging oak tree, his fly should be fishing in front of the flat stone and he is certain when the fly floats within a yard or two of the latter to feel the desired tug at his line. Among the host of friends constantly entertained by the duke at Floors, there are always some who are not proficient anglers. August Lumley, a most popular and charming man of society, was per-

mitted, during a visit at Floors, to try his hand. When he had made his cast the fly floated almost anywhere but in the right direction. At length a salmon more foolish than his fellows, took firm hold, and as the fly was fast, Lumley, of course, could not lift the line, so he turned round to fisherman Tom Noble, saying: "The line won't come up." The old Scotchman, with an inimitable dry irony replied, "Eh, mon, it is just a fish that has caught ye."

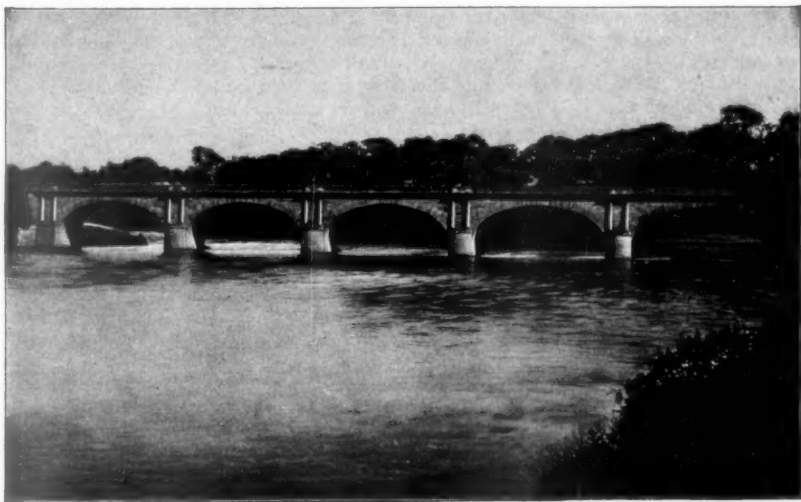
To the Marquis of Bowmont (Duke of Roxburghe, since deceased) and his late father I am indebted for many a fine day's sport on river, field and moor, and I doubt whether two better all-round sportsmen or more hospitable hosts ever lived. The present duchess, who is the daughter of the late Duke of Marlborough, is an adept with the rod and line.

My very first experience in the Tweed occurred more years ago than I would like to chronicle. I was staying at Newton Don, and a friend who had leased part of the Tweed from Sir Waldey Grif-fiths put the water at my disposal. Throwing my legs over a fast pony, I soon covered the distance between home and the salmon cast, where I found a boat and a fisherman awaiting me. Karse,

a fisherman well known for his skill as a boatman and knowledge of his craft, was to be my guide. The portion of water in which I had to capture my salmon was called the Sprouston dub—by a "dub" is meant the deep, comparatively still water above a mill-dam, of which there are several on the Tweed, and all are good spots for fish to lie. It is necessary also to have a breeze to ruffle the surface of these pools. This particular morning there was none, so we had to row down to the end of the pool where the water was swifter and went over the hang of the rapid. The fish at this spot actually rise on the very edge, or hang of the fall, and should one be hooked and tightly held, he invariably goes down the rapid, and the chances are, is lost to you and your heirs forever. This was my case: a good fish "took me," and in spite of the warnings of Karse, to "give him his head, and slack the line," so as to allow him to come up into the pool again, I held on tightly, but in another minute was convinced of my folly, as with a plunge he went down the stream. A few yards of line ran out, when my rod straightened, my fish was gone, and on reeling up my line I found I had lost my "Jack Scott" fly with the fish.

During the afternoon a slight breeze sprang up, and we moved towards the

head of the dub, fishing as we went; when a big whirl in the water betokened the rise of a grand fish; but we had passed it. Karse immediately allowed the boat to fall down the stream so as to come quickly over the spot again. Returning thus to where he had first risen, and allowing my fly to sink well in the water, the fish rose again and this time gave ocular demonstration of his being well hooked. Karse now warned me to be very wary as he felt sure we had a foe-man worthy of our steel. For a short time the fish, as most heavy ones do, swam lazily about deep down in the pool, shaking violently at the line and making it sing in the water. Suddenly he altered his tactics and went up stream like lightning; we were afraid he might cut the line on the rocks, but he took a rush across the stream and put us out of danger. He jumped from the water after going sixty or seventy yards, when down went the top of the rod, for, to hold a tight line at such a time, in nine cases out of ten, means the loss of your fish, the strain being so great that the least check is apt to cause some portion of the tackle to give way. After these gambols the fish began to tire, and in a short time my companion was enabled to slip his net under the salmon. He weighed thirty-one pounds, in those days an unprece-



THE SALMON POOL AT KELSO BRIDGE.

dented weight, for Karse told me that though he had fished for thirty years on the Tweed and killed hundreds of salmon, he had never himself caught one so heavy. When I returned home, my bag consisted of five fish, but I bore the chief prize slung across my back.

Since that time new laws and stricter preservation have increased both the number and weight of the salmon in the Tweed. Thirty-five and thirty-six pound fish are now by no means uncommon, and my friend, the late Duke of Roxburghe, killed one of forty-five pounds in the Floors waters.

Of all the rivers in Scotland none can compare to the Tweed. Its banks and valleys are celebrated in song and story. Its ruined castles are invested with the romance of many bloody encounters and border forays. Its country-seats and demesnes are hardly equalled. The produce of its waters furnishes an epicurean feast, and to a fisherman this river is an endless dream.

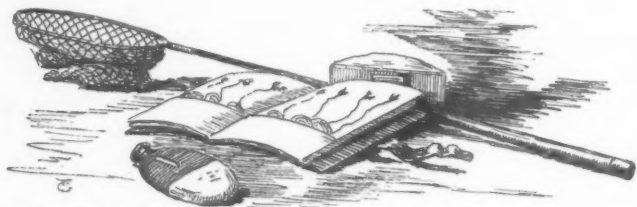
The present Floors castle is a renovated structure, the center part, which was formerly square, having been added to, whilst new wings of great size stretch out on either side. As you drive up to the entrance hall, the quadrangle is most imposing in its effect, and the stately timber that surrounds the back part of the castle adds grandeur to the scene. Floors is built on an eminence above the river, and from its windows may be seen to the left the town of Kelso, old Teviot castle in front, the right being lost in vistas of the most magnificent woods. In the distance lie the purple moors of the Grampian hills. The grounds surrounding the house are not cut up into gardens or flower beds, but are all in magnificent

grass slopes, extending some 100 or 150 yards into the park and are kept with such care that the whole place appears one sheen of green velvet, studded here and there with beautiful pines and flowering shrubs, among which, and most cared for, is the *Wellingtonia gigantea*, planted there a few years ago by her Majesty, Queen Victoria, while on a visit.

The fishery laws are very strict in Scotland and the time for nets is restricted as is also that for rod fishing. The spawning beds, or "reds," are now well watched; formerly hundreds of fish were killed in the time nature sets aside for them to propagate. The male fish is called a "kipper," the female a "kelt." As the time approaches for their spawnings the male fish develops an enormous hook from his under jaw. This is for helping the female to dig a bed out of the gravel wherein to deposit her ova. It also serves to protect his spouse. During this period the male fish is very savage and drives away intruders from his special domain. The effect of preservation has been largely to increase the number of young fish, and the parents after going down to the sea return a much greater size.

During the autumn months the use of the "gaff" is strictly prohibited and a large landing net substituted so that in case unseasonable fish should be caught they may be returned into the river. At that time of the year these fish are easily known, as instead of having the beautiful silvery appearance they present usually, they turn a dirty, blotchy, red color and are unfit for use.

A female fish is supposed to carry a thousand eggs for every pound of her weight, so a ten-pound fish would deposit 10,000 eggs.





BY POULTNEY BIGELOW.

IN the summer of 1887 I had the good fortune to be taken over the great sewage farms which lie at a distance of about six miles from Berlin. I was accompanied by the bacteriologist, Dr. Koch, who, in the course of conversation, let fall the remark that, in his opinion, Berlin was proof against an epidemic, owing to the manner in which her sewage was carried away and rendered innocuous. These words, coming from such a man, were so striking that, on reaching home, I put on paper, in the form of notes, the result of my day's experience, curious as to how far this prophecy of the learned doctor would be borne out.

The great cholera epidemic came and paralyzed the commerce of most of the seaport towns of Europe, devastated Russia pitilessly, and left the great city of Hamburg more impoverished than when the troops of Napoleon evacuated it.

Berlin, looked upon the progress of the plague with equanimity, although she is on the highway between Hamburg and Russia, and daily exposed to an attack, because she lies upon a river connected, by means of canal, not only with the waters of Hamburg and Russia, but of an infected port on the Baltic, Stettin. Her hospitals accepted, as a matter of course, the isolated cases of cholera that occurred in her neighborhood, but there was, at no time, anything approaching to an epidemic within her walls. Travellers passing, as I did, during the height of the cholera scare were not annoyed in any way; in fact, the life of the city was perfectly normal, and thus the words of Dr. Koch have been justified.

Berlin has solved the question: how to make cities healthy. She has called to her

assistance men of scientific attainments and administrative experience. The political vagrants that barnacle themselves upon every department of our municipal administration, from the health department to the primary schools, are a class unknown in Berlin; and the idea that a citizen must be paid for acting as a municipal official, has not yet taken root there.

The experiment made by Berlin in utilizing her sewage by making it enrich the sandy soil of the neighborhood has proved so successful, is so simple, so inexpensive, and so well suited to the needs of New York, that a few words of description may not prove uninteresting. And if we bear in mind that within a few miles of our City Hall are thousands of acres of sand, only waiting for proper manuring before blossoming into high fertility, it will be readily appreciated that any method that will not only accomplish this result and purify our city, but lighten the burden of our taxes at the same time, deserves study.

The present system of cleansing Berlin has been tested by nearly twenty years of thorough experience. It was introduced in the face of governmental opposition and the more bitter antagonism of those living in the neighborhood of fields likely to be inundated with city sewage. During these years, the affairs of the department have been managed by gentlemen of the highest respectability, with the strictest economy, and with a view to gathering the most valuable scientific data from this novel experiment.

I will try to explain, briefly, the process.

Berlin, for scavenging purposes, is divided into districts, each of which is under a competent head, who is responsible for

the working of the system within his limits. A huge cesspool in each collects all the sewage in that particular district, and this sewage, by means of powerful engines, is uninterruptedly pumped off, far out of the city, on to land specially prepared for this purpose. Difficulties, in matters of detail, have been met and overcome, and by a careful system of observation it has been learned how to meet sudden overflows, to adapt the number of pumps to the work required, and to arrange for reserve power, in case of emergencies.

Let us take a look at one of the great sewage farms, Blankenburg, for instance, half-a-dozen miles north of Berlin.

This farm I visited through the courtesy of the chairman of the municipal committee on sewage, Herr Stadtrath Marggraff, a gentleman who receives no salary for filling a position which demands the most active employment of nearly his whole time. I need only add that, in Berlin, his name was mentioned to me, in the best quarters, as being synonymous with efficiency and public spirit.

After a short railway ride, we dismounted at the station Blankenburg, immediately adjoining this great sewage farm of about 2700 acres. The road along which we walked was deep with sand. On either side of us, however, were fields, rich with a most luxurious growth—fields which, but for the irrigation to which they are subjected, would be as fruitless as the road on which we walked.

I noted magnificent artichokes, tomatoes, lilies of the valley, violets, apples, pears, gooseberries, roses, beets, in short, every variety of flower, fruit and vegetable, growing upon soil which, ten years ago, would hardly hold the coarsest shrubs.

The various sewage farms surrounding Berlin, have under irrigation so far about 13,000 acres. The city is, however, acquiring more land for this purpose, as funds become available, and for some years to come we may expect an annual addition to the irrigated system.

There were, in the official year 1885, some 10,000 acres under irrigation, for a variety of purposes, including experimental agricultural purposes, nurseries and flower-raising. The staple crops, however, were summer and winter rape, mus-

tard, hemp, winter and summer wheat, winter and summer rye, oats, Indian corn, barley, buckwheat, peas, beans, clover, grasses, potatoes, beets, cabbage, chicory and turnips. Cereals alone took up nearly 4000 acres.

In its original condition, that is to say, before the city of Berlin adopted the present method of cleansing itself, this land was worth \$182 per acre. As soon, however, as sewage is applied to it, the value rises to over \$400 per acre.

In order to realize what a great work Berlin has accomplished, not merely for the cleanliness and health of the city, but also for the benefit of the surrounding country, and the reduction of taxes, we must bear in mind that her position is in the center of a vast sandy plain, diversified by morass and swamp. The dreariest stretches of sandy Long Island are picturesque, if not luxuriant, in comparison with the country about the German capital. Yet on this soil are now being raised crops that would astonish an Iowa state fair. I was told that, on some fields that we passed, seven crops of grass had been cut in one year, off of one piece of land, two acres having yielded alone twenty-five tons. And this grass is of a most excellent quality, as is attested by all the farmers of the neighborhood, who seek to get it for their cows.

One field contained eighty-one acres of mangelwurzel alone, and we had an opportunity of proving effectively that the stuff raised was of the best quality.

At intervals we would pass men loading their carts from adjacent fields, and found, in talking with them, that they had rented irrigated fields from the city and were doing a thriving business.

Learned lights of the German scientific world had gravely told their hearers that for one year, two years, possibly three years, the system might work; but that the time must speedily be when the soil would contain so much sewage matter as to not only make vegetable growth impossible, but to poison the air and water of the whole surrounding country. The bulk of Berlin believed firmly that the adoption of the present system of disposing of sewage was one calculated to simply remove the poisonous matter from within the city to a belt encircling the city. The danger thereby, it was thought, would be

in nowise diminished, for they looked upon the system as one calculated to surround them with a cordon of poisonous outposts, whose pestilential powers could act against them with every breeze.

The managers of the sewage farms have found that they have no difficulty at all in adapting their crops to the strength of the soil at their command. In other words, they can exhaust as fast as the city can restore.

Another great source of alarm was lest the drainage from the irrigated fields should poison the waters of the neighborhood. So serious was this feeling among all classes, that a law was passed, making it punishable, by a fine, for anyone to drink from the waterways near any of the sewage farms. Mr. George von Bunsen, who has taken great interest in the encouragement of this work, told me a characteristic anecdote in this connection.

The head of the sewage farms, when this law was in operation, was Dr. Falk, who had made exhaustive experiments with the water from these fields, and was thoroughly convinced of its purity.

One day, Mr. von Bunsen, with a committee of the German parliament, were making an inspection of the fields with the doctor, and took the occasion to ask how it was possible to prevent the peasants of the neighborhood from breaking the law by taking a drink now and then from the ditches. The committee were all convinced that the water was deadly; the sign-posts all warned people to have nothing to do with it, and yet it did look clean and might prove a great temptation.

Said Dr. Falk: "I am at the head of this institution in two capacities. As magistrate, it is my duty to punish, by a fine of three marks (seventy-five cents), anyone convicted of drinking of this water. As physician, however, I give you my word that you may drink it without the least danger to your health—in fact, it is purer than what you have on your tables in Berlin."

The parliamentary deputation were incredulous. They at first treated the doctor's statement as meant for a joke; but, finding that nothing was further from his thoughts, one after the other took a drink from the ditch near which they were standing, and thus forever disposed of an absurd piece of superstition.

Dr. Koch, the authority on bacilli and disease-germs, told us, on the spot, that before disease-germs could propagate themselves in Berlin, they were hurried off on to this soil, which is completely destructive to bacilli. The six hours that intervene between bacilli entering the drains of a Berlin house and reaching the ditches of the sewage fields, are not enough to give the disease a start.

Nevertheless, such was my prejudice that, when an attendant offered me a glass full of the sewage water that passed at my feet, I think I should have declined, could I have done so with any fair pretext.

The water offered me in this case had entered the sewers of Berlin only six hours before. The only cleaning it had received was in percolating from the irrigated field into the ditch that surrounded it. So effective, however, is this, that my drink was not only as clear as pure spring-water, but the taste was as though it had been distilled—a taste familiar on shipboard. And not only was this water free from odor, but the air, on and about the irrigated fields, was not tainted to a point that could be called offensive. At the moment of flooding a field, the odor would be as strong as on any field freshly manured in the usual manner.

The sewage is so largely cleansed by the mere passage through six miles of pipe, that, after it has been a short time upon a field, the odor is hardly noticeable. The complaints from neighboring farmers, which at first threatened to wreck the enterprise, have quite ceased.

The effect upon the stranger who, after driving for miles through sand, comes suddenly upon a garden fertile beyond anything known to the most favored soil, is startling. He cannot realize that what he sees is genuine and, of course, suspects some baneful property to attach to these plants. The Berlin marketers, at first, would not touch them, because their customers declined them in horror. Today, so great is the demand for "sewage vegetables" that the market people are clamoring to have a special section reserved for this growth alone, alleging that, in that way, they can get higher prices for these particular vegetables. The revolution in public sentiment, on this subject, has been complete, and today no industry in the empire is more secure than that of

renting sewage-irrigated fields from the city of Berlin, and raising thereon, truck for the market.

Does the method of disposing of sewage pay? This is the question that will interest the tax-payer. We can answer emphatically, yes—it pays in the most handsome manner—at least it pays the Berlin citizen well, and there is no reason why we should not derive equal benefit from it.*

When I first knew Berlin, before and during the war of 1870-71, the sewage went into the open gutters, and was swept along by gangs of men, with a resulting smell of the most offensive kind. So flat is the city, that the water did not flow off itself. This system, primitive and disgusting as it was, had, it was thought, the merit of cheapness.

Quite the contrary.

The city spent more upon its street-sweepers of that day than upon the finished machinery now at work. The sewage of 1870 went into the sluggish streams of the neighborhood, to poison the fish and benefit no one—just as with us in New York. Today, the Berliners earn a pretty penny by turning farmers and saving their manure.

If the present system of sewage costs Berlin no more than in 1870, they would be immensely the gainers in these points.

- 1.—They have no smells in their streets.
- 2.—They are not poisoning their waterways.
- 3.—They are insured against infectious disease.

All this achieved with no additional outlay to the tax-payer; but, on the contrary, at a profit of two per cent. upon the capital invested. This is the financial result of Berlin's sewage operations.

Perhaps a few figures will illustrate how this comes about—figures too simple to puzzle the most unstatistical.

For the twelve months between March 1885, and April 1886, the cost of cultivating 9194 acres, was \$134,778, while the income from the same was about \$271,000, being a profit of over \$136,000, or about \$32.50 for each acre. This profit is calcu-

lated without reference to the general and official expenses, and interest on capital. Counting, however, all possible charges, the profit still amounts to an average of \$18.50 to the acre.

The director of this great system of sewage farms receives \$2000 a year, not too high a salary, we must admit, when we reflect upon the scientific attainments such a man must possess, his administrative ability and business experience.

Last year's expenses for salaries and expenses, covering all the sewage farms, amounted, on an average, to only \$2.65 per acre. The expenses under the head of taxes and charges were \$11,795, less than ninety cents an acre.

Maintaining the various farm buildings costs one and twenty-four hundredths of their estimated value, including their insurance. The value of all house furniture, agricultural machinery, and implements, represented about \$16,000, or \$1.28 to the acre.

The cost of keeping all roads and ditches in order was about forty cents to the acre.

Adding in all the miscellaneous expenses, the grand total for the year, under the head of general expenses, reaches only \$78,364.67, or \$5.90 an acre for each of the 11,769 acres that were "be-sewaged" that year.

Stock-raising is a most valuable part of the Berlin farms, as well as receiving horses that require rest and pasture. The value of their grass may be appreciated, when we learn that ninety-two fields sown with grass, representing 524 acres, produced together 231,308.50 centners.* Some of these fields were sown six times in the year.

A large source of revenue may be expected from renting irrigated fields for truck purposes, also orchards. The Berlin farms have now over 100,000 fruit trees where, twenty years ago, nothing of the kind would grow, and each year sees an increase. If, by simple irrigation of this kind, we can convert a sandy desert into grass meadow that will yield seven crops in one season, as at Blankenburg, it is fair to think that any corporation

* The report of 1886-87, just issued (Jan. 1888), states that the profit upon each of their cultivated hectares was fifty-eight marks (\$14.5), equivalent to about \$6.00 per acre.

All the land acquired by Berlin for irrigating purposes (16,457 acres) was purchased in the same manner that it would have been had it been needed for railway purposes. This area, all within ten miles of Berlin, cost the municipality about \$4,092,177. Note also that this land when irrigated, is let to truck gardeners at (about \$20 to the acre).

* One centner = 123.472 pounds.

that undertakes such an enterprise in earnest will not lose money.*

Last year it was found that upon a farm of 1356 acres, irrigated by sewage, the whole cost of preparing, sowing, cultivating, harvesting and irrigating seventeen different crops amounted to only seventeen dollars an acre.†

We all know that more danger to the public health arises from the sewers than from any other cause, and that, therefore, scavenging, as a profession, must be a dangerous one. But the system under which Berlin purifies herself is happily freed from the ill effects attending all others.

The several estates, making up the total area of the sewage farms, were supporting last year 33,749 souls. Out of this number there were 237 cases of illness, the causes of which are interesting to note.

The figures, in themselves, are uninteresting, their value being purely negative. It cannot be demonstrated by them that residence upon a sewage farm is more healthy than elsewhere. But, on the other hand, it will be seen that, so far as health is concerned, one is no worse off upon a sewage farm than in any other community. This fact alone is well worth bearing in mind, for it took twenty years in Berlin to overcome the prejudice entertained against this sewage system by people who predicted that it would result in breeding pestilence all around the city.

To apply the lesson of Berlin to our requirements, it would be necessary :

First—To acquire enough land between Whitestone and Coney island to enable the city to lay out fields, suitable for irrigation, and enough of them to meet the anticipated increase in the population.

Secondly—The sewage of New York island, instead of being turned into the surrounding waters, would then be collected at a dozen points, on the east side of the town, between the Harlem and the Battery.

Thirdly—From these points of reception it would be pumped off, night and day, by means of powerful engines, through suitable pipes, out on to the city farms. None of these farms need be more than ten miles from its particular pumping station. One pipe-line, for instance, might lead from the foot of Fulton street out in the Flatbush direction. Another, from the foot of Tenth street, could work the Jamaica neighborhood. Several pipe-lines could cross the East river at Blackwell's island, and enrich the Flushing neighborhood, which now pays such heavy taxes for manure.

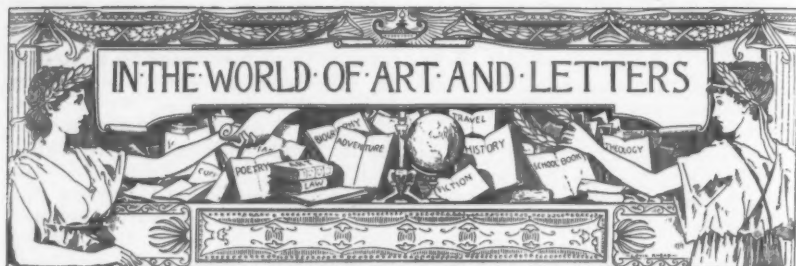
A scheme of this kind, faithfully carried out, would make of Kings and Queens counties a very paradise of fruits, flowers and vegetables. The dreary sand wastes of today would give place to well-kept gardens, managed by happy tenants of the city, who would be glad to take, on long lease, land irrigated in this manner. Real estate would immediately rise to a solid value, in places where, today, it is worth nothing, save on the hazy possibility of its one day being a resort of summer boarders. Brooklyn and Williamsburg, it is reasonable to think, would heartily coöperate in the undertaking, for their interest in the matter is, if possible, more pronounced than that of their sister across the bridge.

We can all appreciate the value of a system that cleans our streets, makes sandy soil grow luxuriant vegetables, and raises the value of real estate. What we shall get, better than all these, however, is such a thorough scavenging system as shall make us hear of yellow fever and cholera, on board incoming ships, without alarm.

We shall be able to feel that any contagious disease, entering our gates, meets, at the threshold, an enemy to its progress so watchful and aggressive that its further spread is, humanly speaking, impossible.

* For the fiscal year 1886-87, the irrigating works of Berlin carried off the refuse of 17,645 houses. This would indicate, according to the last census (1885), which gives one house to sixty-five inhabitants, that the present facilities could provide for a population of 1,146,925, a fraction over a million.

† In calculating the relative cost of irrigating from Berlin and New York, the difference in wages is, of course, an important factor. The last report of the Berlin Sewage Commission (1886-87) gives the following as the wages paid there: Engine drivers, \$1 to \$1.25 a day, sometimes as high as \$1.50; irrigation inspectors, fifty to sixty-two and one-half cents for a day's work of twelve hours; day laborers, men, forty-three to fifty-seven cents; day laborers, women, fifteen to twenty cents; children, seven and one-half to twelve and one-half cents. At harvest-time the wages are raised thirty-three and one-third per cent. There was paid out in wages, to last year's workmen, upon the 4166 hectares under cultivation, around Berlin, \$27,357.5, about \$2.67 to the acre.



THE COSMOPOLITAN asks me to say a few words in each number upon the most important event of the month. For once, at least, I confess that I am greatly embarrassed. What event, during this first half of June, has most attracted the attention of Paris? It would take a clever man to answer this question. With us, one event crowds upon another, and no single one holds captive for any length of time the frivolous and vagabond mind of the Parisian. Alfred de Musset, alluding to the death of Malibran, a fortnight after she had passed away, declined to say anything in public, adding, with a touch of sadness that, in Paris, two weeks "make of a recent death an old story." I fear that my comments, reaching you after the telegraph has robbed the news of its freshness, may seem to you "warmed over," as we say in France. Nevertheless, I risk a word, counting upon the indulgence of the American public.

In the department of letters and the drama, the only one with which I am concerned, two events have produced a marked sensation in Paris. The first is the publication of a new volume of Victor Hugo: "Toute la Lyre;" the second is the departure of the Comédie Française for London.

It will perhaps astonish you to learn that Victor Hugo, who died some years ago, should thus continue to give a new work to the public every summer; and your surprise would be natural enough. But you will be still more astonished when you learn that this volume is not to be the last; that from the closet into which Victor Hugo threw his manuscripts pell-mell will come for years yet volumes of verse or of prose. These are odds and ends, but the odds and ends of a giant.

You know how pianists, in order to keep their fingers in condition, practice every day upon their instrument, going over and over their scales and exercises, like the enthusiastic fencer who thrusts at a wall to keep his wrist supple. Well, this was the case with Victor Hugo. Every morning in his Isle of Guernsey, before or after breakfast, he took a walk along the shore of the resounding sea, and, to keep his hand in, he improvised, as he went, hundreds of lines: these were his scales.

Some of these verses he thought well of, and inserted them at once in the collection published during his lifetime. Others were not so satisfactory; he did not consign them to the flames, for he was reluctant to destroy any work of his hand; he simply threw them into his closet, whence his heirs recover them today.

Think how much he must have written during the long years of his exile, when, solitary and without occupation, writing was his only resource. So when we think there is no more, there is still some left. A satirical journal has greatly amused us in Paris by its enumeration of the catastrophes which, one after the other, befall our poor Europe: a war with Germany, a socialistic revolution; and at the end of each couplet recurs the refrain:

"And a new volume of Victor Hugo appeared."

Finally the trump of the last judgment sounds in the valley of Jehoshaphat, the dead rise from their graves, God summons mankind to separate the good from the evil.

"And a new volume of Victor Hugo appeared."

They make fun of him, for the Parisians love to make sport (blaguer) of their glories. I use the word "blaguer" without knowing whether it has an English equivalent, for it has the true flavor of the boulevard. Yes, we laugh, yet we admire. There are several hundred lines in this volume which are beyond praise. But they tell us nothing new of the genius of Victor Hugo. It is excellent Victor Hugo, but it is Victor Hugo, and we already know him so well! How many thousand lines of his pen we have read and learned by heart! And there is a word in vogue just now in Paris that expresses the sensation of shock produced by a book which breaks the monotony of habit; we say it gives us "a new shiver." The poetry of Victor Hugo gives us only old shivers. As for me, I am old, I belong to the patriarchs; yet, in reading these new verses which bring the old ones to mind, I, too, have shivered.

I am going with the Comédie Française to London, as I went with it a year ago to Vienna, as I have followed it into the provinces, and as I went as its herald, years ago, to the capital which it is now about to revisit.

You who are accustomed to see your theatrical companies fold their tents, to wander over the American continent, can hardly realize that this departure of the Comédie Française is for us an event in the artistic world. You can hardly believe that my heart should beat with fear and hope at the thought of the reception which we shall receive on the banks of the Thames. For us, the Comédie Française is the home of Molière, the heart of our dramatic art. The day when this great institution perishes, and, alas! it is destined to perish, the French theater will cease to be. Standards will have disappeared, and we shall only have wandering troupes, playing lucky hits on such stages as they may find. Happily, we have not yet come to this.

I will tell you next month what the English think of our comedians, for I have exhausted the space you have assigned.

FRANCISQUE SARCEY.

* * *

LE FAIT DU MOIS.

LE Cosmopolite me demande de lui parler dans chacun de ses numéros du fait le plus important du mois. J'avoue que pour la première fois au moins je suis très embarrassé. Quel est l'événement qui durant cette première moitié du mois de juin a le plus fixé l'attention des Parisiens? bien habile qui saurait le dire. Chez nous un fait pousse l'autre et le même ne garde pas longtemps captif nos esprits vagabonds et frivoles. Alfred de Musset, parlant de la mort de la Malibran quinze jours après qu'elle était morte, s'en excusait près du public, et disait avec une nuance de tristesse qu'à Paris quelques jours,

"font d'une mort récente une vieille nouvelle."

Je crains bien que mes réflexions, ne venant qu'après que la nouvelle aura été là-bas défranchie par le télégraphe ne vous semble être ce que nous appelons en France: *du rechauffé*. Je me risque néanmoins et compte sur la bienveillance du grand public américain.

Dans l'ordre des lettres et du théâtre, le seul dont j'aie à m'occuper ici, deux faits ont produit à Paris une grande sensation. Le premier est la publication d'un nouveau volume de Victor Hugo—*Toute la Lyre*; le second est le départ de la Comédie Française pour Londres.

Vous serez peut-être étonnés là-bas que Victor Hugo, mort déjà depuis quelques années, donne ainsi tous les étés un nouvel ouvrage au public. Il y a là en effet de quoi être surpris. Mais vous le serez bien davantage si vous apprenez que ce n'est pas fini; que de l'armoire où Victor Hugo jetait pêle-mêle ses manuscrits, sortiront encore, durant des années, des volumes de vers ou de prose: ce sont des rognures, mais les rognures d'un géant.

Vous savez sans doute que les pianistes, pour s'entretenir les doigts, se livrent tous les jours à de longs exercices sur leurs instruments, entassant gammes sur gammes, comme un friand de l'écriture, qui tire au mur pour se conserver la main souple. Eh bien! Victor Hugo faisait de même. Tous les matins, en son île de Guernsey, avant ou après déjeuner, il allait se promener sur le bord de la mer retentissante, et, pour se faire la main, il improvisait en se promenant des centaines de vers: c'étaient ses gammes.

De ces vers quelques-uns lui avaient semblé mieux venus que les autres, et il les avait tout de suite insérés dans les recueils qu'il publiait de son vivant. D'autres lui plaisaient moins; il ne les condamnait pas au feu; car il lui répugnait à rien détruire de ses œuvres. Il les entassait dans une armoire, d'où ses héritiers les tirent aujourd'hui.

Vous pensez ce qu'il a pu en composer pendant ses longues années d'exil, où il vivait solitaire, et où il n'avait d'autre occupation que d'écrire. Quand il n'y en a plus, il y en a encore. Une légende qu'a publiée un petit journal satyrique a fort amusé les Parisiens. Elle énumère toutes les catastrophes qui tombent l'une après l'autre sur notre pauvre Europe: une guerre avec l'Allemagne, une révolution socialiste, et, à la fin de chaque couplet revient le refrain obligé:

"Et il paraît un nouveau volume de Victor Hugo!"

Enfin, la trompette du jugement dernier retentit dans la vallée de Josaphat; les morts se lèvent tous de leurs tombes, Dieu les appelle pour discerner les bons d'avec les mauvais.

"Et il paraît un nouveau volume de Victor Hugo!"

Et de rire! Car les Parisiens aiment à blaguer leurs gloires. Je me sers de ce mot *blaguer* sans savoir s'il a un équivalent dans la langue anglaise—mais le mot est si boulevardier!

Où! ils blaguent, et néanmoins ils admirent! Il y a dans ce volume quelques centaines de vers qui sont admirables. Le malheur, c'est qu'ils ne nous révèlent rien d'inconnu sur le génie de Victor Hugo! C'est de l'excellent Victor Hugo, mais c'est du Victor Hugo; et nous connaissons déjà tant Victor Hugo! Nous avons lu et nous savons par cœur tant de milliers de vers échappés de sa plume! Mais à Paris en ce

moment, il y a un mot à la mode pour exprimer cette secousse que l'on éprouve à écouter une œuvre qui vous tire de vos habitudes; on dit qu'elle apporte "un frisson nouveau." La poésie de Victor Hugo ne nous apporte plus que de vieux frissons. Mais je suis vieux moi-même; j'ai passé dans les Patriarches, et j'ai frissonné tout de même, en lisant ces nouveaux vers qui me rappelaient les anciens.

Je m'en vais accompagner la Comédie Française à Londres, comme je l'ai accompagnée à Vienne Il y a un an, comme je l'ai suivie en province, comme j'ai été même, il y a bien des années, son héraut quand elle a fait une excursion dans la ville où elle retourne aujourd'hui.

Vous qui êtes habitués à voir vos troupes ployer leurs tentes et partir pour se promener à travers l'Amérique, vous ne comprenez sans doute pas que le déplacement de la Comédie Française soit pour nous, un événement artistique. Vous ne comprenez pas que le cœur me batte d'espoir et de crainte à l'idée de l'accueil qui va lui être fait sur les bords de la Tamise. C'est que pour nous, voyez-vous, la Comédie Française, c'est la maison de Molière, c'est le centre de la vie théâtrale. Le jour où cette grande institution tombera, et elle est destinée à périr, hélas! il n'y aura plus de théâtre en France! Il n'y aura plus que des troupes de raccroc jouant des pièces de hasard sur des scènes de rencontre. Nous n'en sommes pas encore là, heureusement!

Je vous dirai le mois prochain ce que les Anglais ont pensé de nos comédiens. La place ici m'est chichement mesurée.

FRANÇOIS SARCEY.



PAUL BOURGET'S much-talked-of novel "Cosmopolis" does not strike me as being a remarkable performance. It has, however, an intelligent purpose (which is far more perceptible in the original than in the English translation), viz.: to demonstrate how we are all defined, limited and, as it were, predestined by our nationality, which, in the hands of this writer, becomes a sort of tragic necessity, as Fate was in the Greek drama. The sturdy steadfastness and self-restraint of the Anglo-Saxon may be made to furnish a capital foil to the fiery instability and passionate rashness of the Slav and the juvenile lightheartedness and irascibility of the Italian. It was an interesting problem the author set himself in this conspicuous juxtaposition of races, but he obviously lacked the requisite knowledge for its successful solution. Thus, for instance, Maitland, the American painter, is only in the most superficial sense American. There is no definite flavor either of Boston, Chicago or New York about him; and in marrying an octoroon girl, on account of her money, he certainly displays no American characteristic. For, I fancy, in spite of Mr. Paul Bourget's declaration to the contrary, that the race prejudice with us is stronger than the love of gold. As for Count Gorka, the Polish nobleman, he would probably appear to a Pole as devoid of the more convincing traits of nationality as Maitland does to an American. That he seems rather good to me may be due to my lack of intimate acquaintance with Poles. I know that the Poles of literature, in a general way, resemble Count Gorka. But then I am also aware that the Americans of literature—that is to say, of European literature—are so little like those we meet in good society in New York and Boston, that an inference regarding the real Pole may prove equally erroneous.

The purpose to present the negro character in the glaring antithesis between the brother and sister, Florent Chapron and Lydia Maitland, is certainly a failure. The former (though but one-eighth colored) is intended to incorporate the faithfulness and devoted self-sacrifice of which the African is capable, and the latter his furious jealousy and his savage cunning and vindictiveness. All the touches of nature which individualize and bring the personality home to the reader are here conspicuous by their absence. We feel that the author has never known persons of mixed blood, or, if he has known them, he has made but an indifferent study of them. Lydia Maitland savors distinctly of melodrama and would have done admirably for the conventional villain of Wilkie Collins or Cherbuliez. Florent Chapron, too, suffers (in spite of the heroism with which the author generously endows him) from a lack

of red corpuscles in his blood ; and the shadowy and somewhat incredible goodness which he manifests in his devotion to Maitland is to me exasperating, because of a certain reasoned and a priori quality which fails to carry conviction.

But here the gallery of lay figures ends. The Venetian, Countess Steno, is extremely good. We feel the living prototype behind her. Who, knowing the society of modern Rome, has failed to marvel at these magnificent grandes dames, who sail through those palatial drawing-rooms with such stately grace, and (though you may incidentally learn that they are grandmothers) carry on passionate intrigues and change their lovers as they would their gloves? The great business capacity of the Countess Steno is a capital touch ; and altogether she is studied from so many points of view that the impression which she leaves behind is vivid and fairly complete. Her daughter, the pathos of whose life is much insisted upon, is also well realized, as is the old French nobleman, Montfanon, with his fervent piety, beautiful simplicity and old-time chivalry. Dorsenne, the rising novelist, contains some interesting bits of thinly disguised autobiography, but is otherwise rather unattractive, and Countess Alba's love for him is a strain on the reader's credulity.

The interest in "Cosmopolis" lies, to me, chiefly in the problem, which is an excellent one, rather than in its solution. The question which arises in my mind, as I close the book, is whether it is preferable to do a fine thing indifferently well, or to do an indifferent thing finely. Mr. Paul Bourget has done the former.

HJALMAR HJORTH BOYESEN.



IN notes so brief as these it is difficult to find any method of sketching what is being done in literature. One can only glance at tendencies as illustrated in a few recent books.

Thus, nothing can be more important than the topic of Mr. F. W. H. Myers's "Science and the Future Life" (Macmillan). Is man to give up the hope of most, the fear of some, and abandon the idea of an existence after death? The social and moral consequences are vast and disconcerting. From a certainty we are reduced either to *un grand peut-être*, or, as Mr. Myers says, to Humanity with a large H : the single straw on which the horse of the apologue failed to support life. What can restore a hope no longer vouched for by faith? Mr. Myers says : Fact, scientific certainty. In his opinion, an enormous mass of abnormal facts, commonly neglected by science, point to the certainty that man is not a mere perishable machine. Dreams, trances, apparitions, hypnotic conditions, have still to be tested, isolated, experimented upon, and this is the work of a society which owes much, almost everything, to Mr. Myers and the late Mr. Gurney. Well, I have ever been of opinion that man is a mystery and that all "ghosts" are not illusions : so I wish a serious hearing for Mr. Myers's book, without accepting his perhaps rather sanguine conclusions.

The interest in style and form is illustrated by Mr. James's "The Real Thing." It is a collection of very literary stories about literary people ; style is much insisted upon, as a thing caviare to the general. The general likes it, when it can get it good, as in Mr. Stevenson, with whom *l'abonné ne se gêne pas*. But I would respectfully hint an opinion that Mr. James's own form shows too much preoccupation with form, a carefulness too obvious and not always justified of its fruits. One's attention is withdrawn from the matter to the manner, from the character to the expression. One sees the workman at work ; one should see only the finished masterpiece. The most interesting tale, "Nona Vincent," cannot be called probable, and is hampered

by this not always lucky research and meticulousness. The best writers avoid "the error," the worst error, of "writing too well."

Ibsen is a topic always with us; Mr. Anstey's "Punch's Pocket Ibsen" (Heinemann) is an amusing reduction of the master to absurdity. As plays, to be read (whatever they may be on the stage), Ibsen's do not need much of Mr. Anstey's assistance. His "reverent following of the Master" in "Pill Doctor Herdal" is particularly cheerful.

In "Kaspar Hauser" (Macmillan), the Duchess of Cleveland defends her late father, Lord Stanhope, the protector of Kaspar, from charges idiotically absurd. Lord Stanhope was well-meaning, but not judicious. He is accused of having aided in the assassination of Kaspar, who is regarded as the true heir of the house of Baden. Lord Stanhope might as plausibly be accused of a share in the Gunpowder plot, or the Gowrie conspiracy; the duchess makes the spiteful folly of the romance as clear as day, but the truth about Kaspar Hauser remains in the darkness which hides the features of the Man in the Iron Mask.

To the very minute minority which reads poetry, let me recommend the dainty pieces of verse in Madame Darmesteteter's "Retrospect" (Fisher Unwin). This lady's sonnets can be read with pleasure, the rarest thing in a sonnet, too often a tiny space of infinite ennui; and Madame Darmesteteter's lyrics are naturally tunable. They are not "grand, epic, homicidal," but they are charming. ANDREW LANG.



NOTWITHSTANDING the opinion expressed by certain carpers that "high art in taverns" (as they phrase it) traverses the canons of good taste, I venture the assertion that one of the most promising of the many recent promising artistic developments in this country is that which has enlisted in hotel decoration the services of artists of the first class.

Concerning the so-called decoration that everywhere, until very recently, has been inflicted upon the "palatial" hotels in this strong-stomached young country of ours, heaven forbid that even by implication I should suggest a kindly thought. With the uncontrollable freedom of an exceptionally ill-bred American Eagle, it soars over everything defiantly—crushing all respectable life out of innocent interiors with its vile glitter of burnished brass and of polished bilious-looking marbles, and fairly filling the outraged air with its discordant polychromatic howls. But precisely because of the very general prevalence of this polished and painted licentiousness—which is due, however, less to an innate depravity than to the still uncurbed barbaric impulses of our national youth—there is cause for devout thankfulness in the fact that a reaction has set in; that in the very places which heretofore have been the hot-beds of decorative vice, in the hotels themselves, a stand has been made against accepting, as in the past, such mangled remains of indecoration as may chance to emerge from the conflict between architects with tastes mechanical and upholsterers with no tastes at all.

The serious side of this up-reaching after better things is very serious. Undeniably, the garishness of American hotels is to a great extent responsible for the garishness that is found in certain sorts of American homes. It is a case of mistaken cause working to wrong effect. In this country, to an extent unknown in any other country, the moneyed top of one generation is recruited directly from the moneyless bottom of the generation immediately preceding it; and so suddenly, for the most part, are made these changes from poverty to wealth that the newly rich have no

chance to learn good manners—let alone to learn good art—as they go flying upward in the social scale. Lacking any authoritative standard, it is only natural that people of this sort should look upon the high-priced hotel as representing in every way the taste of the high-class society to which they aspire; and that, logically, they should imitate in their private dwellings the hotel scheme of violent and antagonistic colors, with its dashes of lurid glitterings, under the pleased impression that they are doing absolutely the correct thing.

To such as these—who go wrong not through evil intention but through lack of right guidance—a bit of good decoration in a hotel may be a veritable apostolic revelation of beautiful truth; a missionary utterance that may search convincingly, and happily change their hearts; while even if artistic grace is not thus granted them (and it may not be, for miracles cannot be counted upon in these degenerate days) their imitative faculties, at least, will have opportunity to follow a good example in the strait path—instead of frisking off to decorative perdition in a wilderness of bad taste. And above all, what makes such an utterance under such conditions valuable is the fact that only in a hotel will it surely reach the class that it most earnestly concerns: for the sort of American who believes that the unhallowed vagaries of ordinary hotel decoration properly may be translated into home life, and who acts upon his dreadful belief, is the sort to whom art galleries and the chastening influences therefrom outflowing are all unknown.

So far from being out of place, therefore, this "high art in taverns," vivid and helpful with its missionary purpose, most eminently is in place; being a cheering sign that we are approaching the happy period when—having definitely ploughed under our barbaric youth, with its unrestrained longing for such screaming color-schemes as fitly go with Steamboat-Gothic and Pullman Renaissance—our art millennium shall come to stay.

THOMAS A. JANVIER.

TWENTY BOOKS OF THE MONTH.

FICTION.—UN SCRUPLE: ROMAN, by Paul Bourget. Amblard & Meyer Bros. 40 cents.

MANY INVENTIONS, by Rudyard Kipling. Appleton & Co. \$1.50.

PRINCE HERMANN, REGENT, by Jules Lemaitre. Translated by Belle M. Sherman. Cassell Pub. Co. Paper, 50 cts.

TWO OF THEM, by J. M. Barrie. Lovell, Coryell & Co. Paper, 50 cents.

STROLLING PLAYERS: A HARMONY OF CONTRASTS, by Charlotte M. Yonge and Christabel R. Coleridge. Macmillan & Co. \$1.00.

A WASTED CRIME, by D. Christie Murray. Harper & Brothers. 50 cents.

AN ADVENTURE IN PHOTOGRAPHY, by Alice French (Octave Thanet). C. Scribner's Sons. \$1.50.

THE SIMPLE ADVENTURES OF A MEMSAHIB, by Sara Jeannette Duncan. Appleton & Co. \$1.50.

MARIONETTES, by Julien Gordon. Cassell Pub. Co. Paper, 50 cents.

HEATHER AND SNOW, by George MacDonald. Harper & Bros. \$1.25.

THE LAST SENTENCE, by Maxwell Gray. Tait Sons & Co. \$1.50.

HISTORY AND BIOGRAPHY.—THOMAS JEFFERSON, by James Schouler. Dodd, Mead & Co. \$1.00.

THE LIFE AND LETTERS OF MADAME DE KRUDENER, by Clarence Ford. Macmillan & Co. \$4.50.

RECOLLECTIONS OF MIDDLE LIFE, by Francisque Sarcey. C. Scribner's Sons. \$1.50.

HISTORY OF THE JEWS, VOL. II., by H. Graetz. Translated by J. K. Gutheim. Jewish Publication Society of America.

SCIENCE.—HYPNOTISM, MESMERISM AND THE NEW WITCHCRAFT, by Ernest Hart. Appleton & Co. \$1.25.

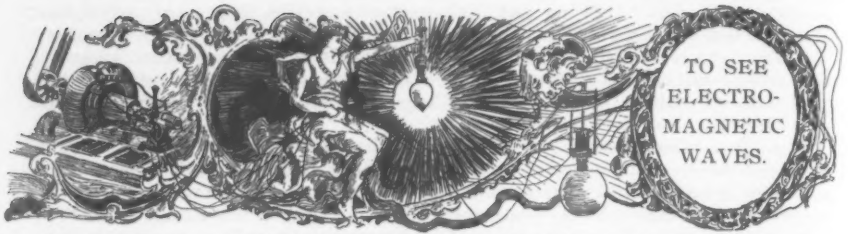
EVOLUTION AND ETHICS: THE ROMANES LECTURES, by T. H. Huxley. Macmillan & Co. 60 cents.

ESSAYS AND CRITICISMS.—QUESTIONS AT ISSUE, by Edmond Gosse. Appleton & Co. \$2.50.

THE MAKING OF A NEWSPAPER, by Melville Philips, and others. Putnam's Sons. \$1.25.

TRAVEL.—WHERE THREE EMPIRES MEET, by E. F. Knight. Longmans, Green & Co. \$5.00.

THE PROGRESS OF SCIENCE.



A CURRENT of electricity in a wire affects the whole space about it to an indefinite distance, so that all magnets and all conductors of electricity tend to change their positions. When a magnetic needle is brought near to an electric current, it is seen to turn so as to set itself at right angles to the wire. The direction the north pole will move depends upon the direction of the current in the wire. If the current be reversed so often that the needle does not have time to move to one side or the other, it will continue to point to the north, but it may be felt to tremble. Such an effect is due to the action of the current upon the ether, and in electrical science is called induction. The disturbance in the ether is transmitted by it at the rate of 186,000 miles a second, the same as light. A succession of reversals of an electric current sets up a series of waves in the ether, which will be short or long as the reversals are more or less frequent. If the current were changed once a second, the waves would be 186,000 miles long. If the reversals were produced 186,000 times a second, the waves would be only a mile long, and so on. Such waves are called electro-magnetic waves, and they may be produced in other ways than the above. For instance, a common permanent magnet, such as is used as a toy, has a magnetic field extending to an immeasurable distance about it. Every time it is moved in any manner, it disturbs the ether through the whole of space. If it be vibrated or rotated any number of times a second, it will produce a succession of waves similar to the ones described, and these waves thus produced and transmitted will reproduce, in other matter upon which they fall, electro-magnetic phenomena, and make the matter vibrate at similar rates.

Now, light is known to consist of ether waves, and such as can affect the eye are about the fifty-thousandth of an inch long. Electro-magnetic waves can now be artificially produced that are only a foot long. With improved methods these will be made still shorter, until they are of the proper length when, there is every reason to think, they will be seen. Physicists have concluded that all light waves are due to electro-magnetic action among the atoms and molecules of matter. Meanwhile it has been found that such waves as we now can easily produce are capable of doing much of the work done hitherto with ordinary currents.

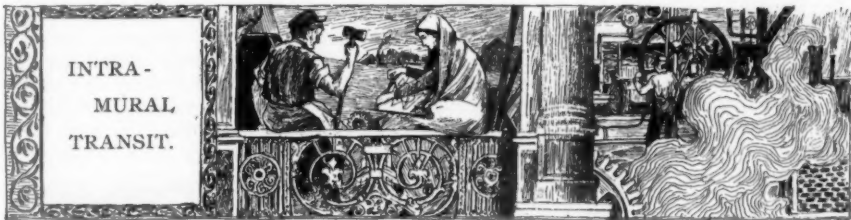
A. E. DOLBEAR.

ASTRONOMERS are greatly interested in the immense photographic telescope just completed by Clark for the Harvard college observatory. It is the gift of Miss C. W. Bruce of New York, who at the suggestion of Professor Pickering furnished the \$50,000 which the instrument has cost. The object-glass is constructed substantially like an ordinary portrait lens, but is two feet in diameter, with a focal length of eleven feet: in appearance therefore it compares with an ordinary telescope of the same diameter very much as a mortar with a Krupp gun. In photographic efficiency, as measured by the quickness with which it can secure the impression of a faint star or nebula, it is about four times as powerful as the thirteen-inch lenses of the telescopes which are now engaged in charting the heavens, and the compound lens enables it to cover an area nearly five times as large: i. e., in five minutes it will photograph stars as faint as the older instruments could reach in twenty, and will take in fivetimes as large a portion of the sky. By longer exposures fainter and fainter stars can be reached beyond any limit now assignable.

It is intended to mount the instrument first at Cambridge in order to go over that part of the heavens near the north pole, and then to transfer it to Arequipa, Peru, (latitude 16° south,) and there to photograph the rest of the heavens. At this place the atmospheric conditions are far superior to those at any other station hitherto occupied by astronomers, as shown by the remarkable results obtained during the past two years by Prof. W. H. Pickering (a younger brother of the Harvard director), with the fourteen-inch telescope now mounted there.

For spectroscopic work the new instrument is also provided with an enormous prism or wedge of glass, to be placed in front of the object-glass. With this, photographs of the spectra of even faint stars can be obtained; so that the ultimate result of the campaign will be to give us not only a perfect map of the place and brightness of every star in the heavens, but also a record of what may be called its "personal character," as revealed in its spectrum. What would we not give now for such a record of the heavens of Ptolemy!

C. A. YOUNG.



THE elevated electric railway of the World's Columbian Exposition, put in operation May 1, 1893—besides affording its daily thousands of passengers admirable bird's-eye views of the Plaisance, with its motley population, the 260 feet high Ferris wheel, and other marvels of the greatest of world's fairs—presents a valuable object lesson in the problem of rapid transit within urban and suburban limits, combining—as it does in a preëminent degree—the advantages of speed, safety, comfort, cleanliness, noiselessness and absolute non-interference with surface traffic. For ten cents the visitor is treated to a six-mile meandering flight about and among the more notable objects of the exposition. The speed of travel (about twelve miles per hour, including stoppages) could be easily doubled or even tripled, were it not found that the public prefer the slower rate as giving a better opportunity to inspect the impressive panorama.

By an ingenious arrangement, which

welcomes the coming, speeds the parting guest,

actual tests demonstrate that a train may be, quite pleasantly and without discomfort, vacated by one and occupied by a succeeding group of half a thousand souls in four seconds. In practice, the time allotted for stoppage—ten seconds—has proved ample. The interval between train departures is five minutes, which allows a full headway between consecutive trains of about 2500 feet. As almost every train, during its fifteen hours of daily service, is loaded to its full seating capacity, some estimate may be formed of the multitude which avails itself of this opportunity to combine with a half hour's needed rest a veritable voyage in mid-air.

But, apart from its value to promiscuous sightseers, this particular plant possesses special interest to the student, the capitalist and the engineer, embodying, as it does, the most improved equipments for electrical propulsion and the application of this subtle force to heavier work than has heretofore been attempted. The installation comprises, for example, a complete system of controllers, whereby the electro-motive mechanism may be, at any moment, put either into series, or multiple or multiple-series form, to meet the exigencies of the occasion. The motors (four to a train) are all located in the forward car (under its floor) and aggregate, for each train, 500 horsepower, which can be considerably raised in emergencies. They are, in fact, powerful enough to haul a train seating 500 passengers, at a speed far exceeding that obtained

in ordinary steam elevated railway service. No overhead, or other conspicuous conductor, is either employed or needed.

The electrical generator (dynamo) employed is the most powerful in the world, its rating capacity being 2000 horse-power (about 1500 kilowatts). The combined engine and dynamo is the largest piece of machinery on the grounds, the revolving parts alone weighing 200 tons, nearly twice the weight of the huge Krupp gun. The cast-steel circular exterior of the dynamo, (which performs double duty as casing and as field-core) is sixteen feet in diameter, and, with its twelve massive interior projections (pole-pieces), weighs over eighty tons. The armature, (built up of 20,000 laminæ of pure wrought iron, wound with 10,000 pounds of insulated copper wire), itself weighs not less than thirty-eight tons, and is keyed to a shaft two feet in diameter, which weighs fifty-five tons and carries a fly-wheel whose weight is eighty tons and whose ordinary peripheral velocity is a mile a minute or eighty-eight feet per second. The armature is driven by a 2000 horse-power steam-engine of the cross-compound Corliss type, to whose fly-wheel the armature is directly attached.

The foremost vehicle of each train, constituting the motor-car and also carrying its full complement of passengers, seems to be a special object of interest and is always the first to be filled. Each car, after nightfall, is, of course, brilliantly illuminated by incandescent electric lamps, and the twelve trains of light, following in quick, sinuous succession—six on the outgoing, and the same number flashing past them on the return trip—seem to the imaginative gazer a playful company of giant serpents.

GEORGE H. KNIGHT.



IN only one other branch of science have there been greater advances since 1850 than in meteorology. Especially is this so as regards the motions of the atmosphere which bring about our rain and snow-storms, the cyclones, terrific tornadoes and remarkable cloud-bursts. While the progress has been extraordinary and the advances of the utmost importance, the spread of knowledge upon this subject among the people has hardly begun. This fact is forcibly illustrated by the number of charlatans parading as rain-doctors in the rich but arid regions of the west, where, if newspaper reports are to be relied upon, they have occasionally succeeded in perfecting contracts with the entire population of a county. Less than two years ago the government sent out its own rain experimenters and one of the great magazines published a duet entitled, "Can we make rain," one of the writers being the government's chief rain-producer and the other an astronomer of world-wide repute. In this discussion the cause of general rains was referred to an agency recognized and declared as inefficient by recent meteorology. The general principles involved in great rain-storms are well understood by modern meteorologists and cannot fail to interest and be of use to every reader of *The Cosmopolitan*.

When moisture-laden atmosphere, from any reason, ascends sufficiently, the pressure to which it is subjected is diminished, it expands and is thereby cooled and its moisture condensed. When this condensation takes place with sufficient rapidity it rains or snows, otherwise only clouds are produced. Clouds may be produced in other ways, but not rain. The ascent of the air which produces rain is generally brought about in one of two ways: first, if the prevailing winds blow over high mountains, they will, in the passage be deprived of their moisture. Thus are produced the heaviest annual rain-falls of the earth. Second, when the atmosphere over any portion of the earth's surface becomes warmer or lighter than over the surround-

ing areas, it ascends just as the air does in a hot chimney, and in the same manner, too, it draws in the adjacent air and the whole is carried aloft to be expanded, cooled, and deprived of its moisture, with great liberation of heat, which heat keeps the draught in operation.

In this way are produced all the general rains of the eastern United States. The air over nearly all the region east of the Mississippi is often involved in the same storm. In such storms, flowing from all sides toward the central flue, the air is swerved to the right by the earth's rotation and the whole becomes involved in one great whirling mass, the central portion ascending as it circles around the flue. These large revolving storms are the cyclones of the meteorologist. Their width is many hundred times their height. When the height of a storm is great as compared to its width and the velocity of the circling winds very great, it becomes a tornado—these the papers commonly call cyclones, but improperly so. The ordinary thunder-storm is much less severe than a tornado and much less extended than a cyclone. From these well-established facts of modern meteorology it is readily understood how inefficient are any means yet employed to imitate nature's storms. In a very moist atmosphere it might be possible to produce draught enough for a little rain. In the arid regions of the west the moisture is not present to continue the draught even if begun, and no one who thoroughly understands the causes of rain-fall would be willing to attempt it. The idea that cannonading, or any other sounds, can produce rain is absurd in the highest degree. The unfortunate farmer throws away money when he gives it to a rain-doctor.

S. E. TILLMAN, COLONEL U.S.A.

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RICHTHOFEN AND HIS SCHOOL.

BARON F. VON RICHTHOFEN has for many years been acknowledged as one of the ablest thinkers in geological science. His memoir on the Comstock lode, although written as a private report to a mining company, has been substantially reprinted several times, and while some of the views maintained in that paper and in a memoir on the natural classification of volcanic rocks (also published in this country) are no longer generally accepted, they are never cited without respect. His great work on China contains his theory on the "loess" beds, stupendous accumulations of dust, affording a soil of inexhaustible fertility. His guide for scientific explorers is also one of the most suggestive and trustworthy of manuals. Of late years he has occupied the chair of geography in Berlin. In this position he has united geology and geography in a very happy manner; or, rather, he has reunited these branches which Leibnitz regarded as substantially identical.

Under his teaching there has grown up a school of investigators, trained in the way they should go; and of these, fourteen, scattered from Chili to Greenland, have contributed papers to a festival volume commemorating von Richthofen's sixtieth birthday. It is a most noteworthy tribute to his efficiency as a teacher, because it contains important contributions to science. The book shows that von Richthofen has not imparted mere barren learning to his pupils, but also the ability to add to knowledge. A long review would be needful to do justice to these papers, while only a few brief notes can be communicated here.

Dr. Fritz Frech contributes a paper on the structural geology of the region of the Brenner. His most important thesis is that unsymmetrical (or monoclinal) folds are due to inequalities in the resistance of the rock masses affected by horizontal pressure from one side. He also finds that folds pass over into faults or groups of faults, an observation which, though not novel, should always be emphasized when clearly demonstrated. Certain cases which simulate valleys of subsidence he interprets as part and parcel of the mountain building disturbance. It is probable that extended studies will at least greatly reduce the number of valleys which can be satisfactorily explained only on the hypothesis that blocks of country have been let down, leaving walls of circumvallation (Senkungsthäler).

Dr. E. von Drygalski describes and discusses a typical fiord in Greenland. His conclusion is that the excavation is due to ice, but that the ground was prepared for

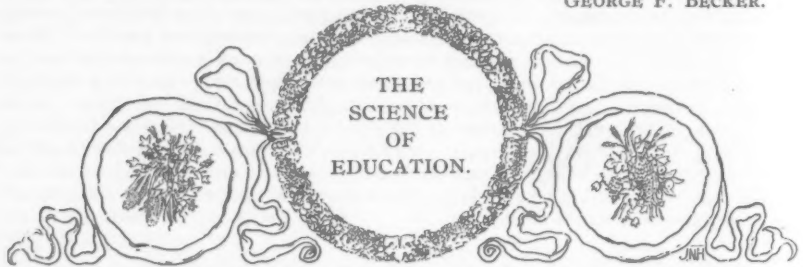
the frozen plow by decomposition acting from fissures in the rock ; so that the main work of the glacier consisted in removing a mass of rubbish, earth mingled with rock fragments. This is substantially the same conclusion as has been reached within a few years with reference to the origin of the Yosemite valley.

Dr. Robert Sieger has worked out an extremely ingenious theory of the history of Lake Constance, the complicated terracing being accounted for by the former presence of a group of glaciers in part on somewhat different levels.

Dr. H. Steffen contributes a paper on the Chilian Andes, and Dr. A. Philippon an important discussion of coastal formations, a subject now receiving attention in this country, but which has been too long neglected.

May Baron von Richthofen long continue to train such scholars !

GEORGE F. BECKER.



THE extraordinary progress made during the last decade in electrical engineering, in the building of machinery and ships, in the development of photography, and in the processes of graphic printing have so filled the attention of the public that methods of education appear to the average man to have remained at a stand-still. But the same spirit of inquiry and research, the same appetite for discovery, and the same keen competition which have characterized the so-called "scientific pursuits" have been equally ripe and productive of results in the department of education. I do not think I exaggerate when I say that a greater advance in the methods of training the mind, and of training the body, has been attained during the last twelve years than was made in the previous twenty-five. The college or the school which remains at a stand-still in these days of progress may count its years of usefulness as nearly past.

The child of six is now taught to read as well in ten months as formerly in from two to three years. The old stereotyped forms of "readers,"—falsely named in many instances, because, instead of aiding the child to learn, they formed habits and inculcated erroneous impressions which only served to defeat their object—have been replaced by intelligent selections from the best writers of English, which in the hands of a good teacher are stimulating to the most sluggish mind. In the teaching of arithmetic and algebra, of history and science, and even of Latin and Greek, tremendous strides have been made ; and in the best schools a new era of instruction has dawned, since the ear, as well as the eye, has come to be cultivated, by the giving of daily exercises in dictation—the greatest motor of modern education in the teaching of younger children. The old "question and answer" plan of learning by rote dull statistics and jaw breaking names has been replaced, in the teaching of geography, by a succession of object lessons, where the vivid interest of the child is awakened and kept under the scientific instruction of a trained teacher, and where the pupil—making his map in sand or clay by the use of his own hands—speedily comes to understand the course of rivers, and the location of cities, by the same natural process by which he learns to locate objects of interest in and about the town in which he lives. And in the department of physical training the word "progress" itself is almost a misnomer, for an *entirely new science* based on physiological principles has sprung up where before were only gross ignorance and suicidal theories.

JOHN S. WHITE,